Part 11
Port Authorities

Part Cross-References

Tax exemption for industrial park owned by port authority, 15-24-1902.

Airport authorities, Title 67, ch. 11.

7-14-1101. Local port authority. (1) Any county or municipality may, by resolution of its governing body, create a public body, corporate and politic, to be known as a local port authority, authorized to exercise its functions upon the appointment and qualification of the first commissioners thereof. Such a governing body may by resolution determine to exercise any or all powers granted to such authorities in this part, unless such powers have been conferred upon a local or regional port authority.

(2) Upon the adoption of a resolution creating a local port authority, the governing body of the county or municipality shall, pursuant to the resolution, appoint or, at the option of the governing body, elect, as provided in 7-14-1106, not less than five persons as commissioners of the authority. The commissioners who are first appointed must be designated to serve for terms of 1, 2, 3, 4, and 5 years, respectively, but thereafter each commissioner must be appointed or elected for a term of 5 years, except that vacancies occurring other than by expiration of a term must be filled for the unexpired term by the governing body.

History: En. Sec. 1, Ch. 456, L. 1985; amd. Sec. 1, Ch. 640, L. 1991.

Compiler's Comments

1991 Amendment: In (2), after "appoint", inserted "or, at the option of the governing body, elect, as provided in 7-14-1106"; and in (2), near end after "appointed", inserted "or elected".

7-14-1102. Regional port authority. (1) Two or more local governments may by joint resolution create a public body, corporate and politic, to be known as a regional port authority. The resolution creating a regional port authority must create a board of not less than five commissioners. The number to be appointed, their term, and their compensation, if any, must be provided for in the resolution. Each regional port authority shall organize, select officers for terms to be fixed by agreement, and adopt and amend from time to time rules for its own procedure.

(2) A regional port authority may be increased from time to time to serve one or more additional counties or municipalities if each additional local government, each of the local governments then included in the regional authority, and the commissioners of the regional authority, respectively, adopt a joint resolution consenting to the increase. However, if a local port authority for any local government seeking to be included in the regional authority is then in existence, the commissioners of the local authority must consent to the inclusion of the county or municipality in the regional authority; upon the inclusion of the local government in the regional authority, all rights, contracts, obligations, and real and personal property of the local authority must be in the name of and vest in the regional authority.

(3) A regional port authority may be decreased if each of the local governments then included in the regional authority and the commissioners of the regional authority consent to the decrease and make provisions for the retention or disposition of its assets and liabilities.

(4) A county or municipality may not adopt any resolution authorized by this section without a public hearing. Notice must be given as provided in 7-1-2121.

(5) For the purpose of this part, a regional port authority has the same powers as all other political subdivisions in the adoption and enforcement of comprehensive port zoning regulations, as provided by the laws of this state.

History: En. Sec. 2, Ch. 456, L. 1985; amd. Sec. 46, Ch. 354, L. 2001.

Compiler's Comments

2001 Amendment: Chapter 354 in (4) substituted "as provided in 7-1-2121" for "at least 10 days prior to the hearing in a newspaper published in the county or municipality or, if there is no newspaper

published therein, in a newspaper having general circulation in the county or municipality"; and made minor changes in style. Amendment effective October 1, 2001.

7-14-1103. Commissioners. (1) The powers of each authority are vested in the commissioners of the authority. A majority of the commissioners of an authority constitutes a quorum for the purpose of conducting business of the authority and exercising its powers for all other purposes. Action may be taken by the authority upon a vote of not less than a majority of the commissioners present.

(2) There must be elected a presiding officer and vice presiding officer from among the commissioners. An authority may employ an executive director, secretary, technical experts, and other officers, agents, and employees, permanent and temporary, that it may require and shall determine their qualifications, duties, and compensation. An authority may delegate to one or more of its agents or employees the powers or duties that it considers proper.

(3) A commissioner of an authority is entitled to receive expenses, as provided in 2-18-501 through 2-18-503, incurred in the discharge of duties. Each commissioner shall hold office until a successor has been appointed or elected and has qualified. The certificates of the appointment, reappointment, or election of commissioners must be filed with the authority.

History: En. Sec. 3, Ch. 456, L. 1985; amd. Sec. 3, Ch. 640, L. 1991; amd. Sec. 574, Ch. 61, L. 2007.

Compiler's Comments

2007 Amendment: Chapter 61 made minor changes in style. Amendment effective October 1, 2007.

1991 Amendment: In (3), in second sentence after "appointed", inserted "or elected" and in third sentence, after "reappointment", inserted "or election"; and made minor changes in style.

7-14-1104. Purpose — public and governmental functions. (1) The purposes of a port authority are to:

(a) promote, stimulate, develop, and advance the general welfare, commerce, economic development, and prosperity of its jurisdiction and of the state and its citizens;

(b) endeavor to increase the volume of commerce within the jurisdiction of the port authority and the state through planning, advertising, acquisition, establishment, development, construction, improvement, maintenance, equipment, operation, regulation, and protection of transportation, storage, or other facilities that promote the safe, efficient, and economical handling of commerce;

(c) cooperate and act in conjunction with other organizations, public or private, in the development of commerce, industry, manufacturing, services, natural resources, agriculture, livestock, recreation, tourism, health care, and other economic activity in the state;

(d) support the creation, expansion, modernization, retention, and relocation of new and existing businesses and industry in the state and otherwise stimulate, assist in, and support the growth of all kinds of economic activity that will tend to promote commerce and business development, maintain the economic stability and prosperity of its jurisdiction and of the state, and thus provide maximum opportunities for employment and improvement in the standard of living of citizens of the state.

(2) The acquisition of any land or interest in land pursuant to this part, the planning, acquisition, establishment, development, construction, improvement, maintenance, equipment, operation, regulation, and protection of port authority facilities, and the exercise of any powers granted to port authorities and other public agencies to be severally or jointly exercised are public and governmental functions, exercised for a public purpose, and matters of public necessity. All land and other property and privileges acquired and used by or on behalf of any authority or other public agency, as provided in this part, must be used for public and governmental purposes and as a matter of public necessity. A port authority may pledge, lease, sell, or mortgage all or any part of its facilities to secure bonds under this part as provided in 7-14-1133.

History: En. Sec. 4, Ch. 456, L. 1985; amd. Sec. 1, Ch. 507, L. 1989; amd. Sec. 4, Ch. 640, L. 1991; amd. Sec. 1, Ch. 22, L. 1995.

Compiler's Comments

1995 Amendment: Chapter 22 in (2) inserted last sentence allowing a port authority to pledge, lease, sell, or mortgage its facilities to secure bonds. Amendment effective February 2, 1995.

1991 Amendment: In (1)(b), before "facilities", substituted "transportation, storage, or other" for "ports

and transportation and storage"; and in (2), before "facilities", substituted "port authority" for "ports and transportation and storage".

1989 Amendment: Inserted (1) outlining the purposes of the local port authority to aid commerce and stimulate creation of jobs through economic development-related activities; and made minor changes in style.

Severability: Section 6, Ch. 507, L. 1989, was a severability clause.

Case Notes

Port Authority Insured Under County Insurance Policy — Extrinsic Evidence Considered — Policy Construed Against Drafter — Insurer Not Immune From Suit as Reinsurer: After a port authority building was destroyed by a fire, the port claimed that it qualified as an insured under a county insurance company policy that included county members and any other county entities that receive insurance through a county joint insurance authority. The insurance company claimed that the language in the policy did not extend to county entities such as the port. Additionally, the insurance company claimed that it was a reinsurer and therefore it was improper for the port to bring a direct claim against it. The Supreme Court held that the port qualified as an insured under terms of the policy and that a direct claim was proper. In reaching a conclusion that was contrary to the language of the policy, the court gave meaning to the entire contract, considered extrinsic evidence, and construed ambiguous language in the policy against the insurer as the drafter. In determining that a direct claim was proper, the court reasoned that the port dealt directly with the insurance company, and therefore the insurer was an excess insurance carrier, rather than a reinsurer. Lincoln County Port Authority v. Allianz Global Risks US Ins. Co., 2013 MT 365, 373 Mont. 60, 315 P.3d 934.

7-14-1105. Cooperation of county or municipality. For the purpose of aiding and cooperating in the planning, undertaking, construction, or operation of ports and facilities pursuant to this part, any county or municipality for which an authority has been created upon such terms, with or without consideration, as it may determine may:

(1) lend or donate money to the authority;

(2) provide that all or a portion of the taxes or funds available or to become available to or required by law to be used by the county or municipality for port purposes be transferred or paid directly to the port authority as such funds become available to the county or municipality;

(3) cause water, sewer, or drainage facilities or any other facilities that it is empowered to provide to be furnished adjacent to or in connection with such ports or facilities;

(4) dedicate, sell, convey, or lease any of its interest in any property or grant easements, licenses, or any other rights or privileges therein to the authority;

(5) furnish, dedicate, close, pave, install, grade, regrade, plan or replan streets, roads, roadways, and walks from established streets or roads to such port or facilities;

(6) do any and all things, whether or not specifically authorized in this section and not otherwise prohibited by law, that are necessary or convenient to aid and cooperate with the authority in the planning, undertaking, construction, or operation of ports and facilities; and

(7) enter into agreements with the authority respecting action to be taken by the county or municipality pursuant to the provisions of this section.

History: En. Sec. 5, Ch. 456, L. 1985.

7-14-1106. Election of local port authority commissioners. (1) Any registered elector in the county or municipality in which the local port authority is located may file a declaration of candidacy with the election administrator. The declaration must be filed within the time period for candidate filing specified in 13-1-502.

(2) The election must be conducted in accordance with Title 13, chapter 1, part 5.

(3) If no declarations are filed for one or more commissioner offices, the appropriate local governing body shall appoint one or more commissioners as necessary to fill those offices.

History: En. Sec. 2, Ch. 640, L. 1991; amd. Sec. 153, Ch. 49, L. 2015.

Compiler's Comments

2015 Amendment: Chapter 49 in (1) in first sentence substituted "declaration" for "petition", deleted

former second sentence that read: "The petition must contain the signatures of not less than 25 registered electors of the county or municipality", and substituted last sentence concerning filing deadline for "The petition must be filed at least 75 days before the election day"; in (2) substituted "conducted in accordance with Title 13, chapter 1, part 5" for "conducted at the time provided in 13-1-104(3) and in the manner provided by 13-1-401"; and in (3) substituted "declarations" for "nomination petitions". Amendment effective November 4, 2015.

Cross-References

Times for holding general elections, 13-1-104.

Manner of conducting general elections for political subdivisions required to hold annual elections, 13-1-305.

7-14-1107 through 7-14-1110 reserved.

7-14-1111. General powers of authority. An authority has all the powers necessary or convenient to carry out the purposes of this part, including but not limited to the power to:

(1) subject to 15-10-420, request annually the amount of tax to be levied by the governing body for port purposes, which request the governing body may in its discretion approve for port purposes;

(2) sue and be sued, have a seal, and have perpetual succession;

(3) execute contracts and other instruments and take other action that may be necessary or convenient to carry out the purposes of this part;

(4) plan, establish, acquire, develop, construct, purchase, enlarge, improve, maintain, equip, operate, regulate, and protect transportation, storage, or other facilities. For these purposes an authority may, by purchase, gift, devise, lease, or otherwise, acquire real or personal property or any interest in property, including easements.

(5) establish comprehensive port zoning regulations in accordance with the laws of this state;

(6) acquire, by purchase, gift, devise, lease, or otherwise, existing transportation, storage, or other facilities that may be necessary or convenient to carry out the purposes of this part. However, an authority may not acquire or take over any transportation, storage, or other facility owned or controlled by another authority, county, municipality, or public agency without the consent of the authority, county, municipality, or public agency.

(7) provide financial and other support to organizations in its jurisdiction, including corporations organized under the provisions of the development corporation act in Title 32, chapter 4, whose purpose is to promote, stimulate, develop, and advance the general welfare, economic development, and prosperity of its jurisdiction and of the state and its citizens by stimulating, assisting in, and supporting the growth of all kinds of economic activity, including the creation, expansion, modernization, retention, and relocation of new and existing businesses and industry in the state, all of which will tend to promote business development, maintain the economic stability and prosperity of the state, and thus provide maximum opportunities for employment and improvement in the standards of living of citizens of the state; and

(8) for an authority with a truck/train transloading facility, receive grants pursuant to 80-11-105 to enhance the transportation of agricultural goods and to meet the purposes of this part.

History: En. Sec. 6, Ch. 456, L. 1985; amd. Sec. 2, Ch. 507, L. 1989; amd. Sec. 5, Ch. 640, L. 1991; amd. Sec. 34, Ch. 584, L. 1999; amd. Sec. 2, Ch. 564, L. 2021.

Compiler's Comments

2021 Amendment: Chapter 564 inserted (8) regarding grants to enhance transportation of agricultural goods; and made minor changes in style. Amendment effective July 1, 2021.

1999 Amendment: Chapter 584 at beginning of (1) inserted reference to 15-10-420; and made minor changes in style. Amendment effective May 10, 1999.

Severability: Section 172, Ch. 584, L. 1999, was a severability clause.

Retroactive Applicability: Section 175, Ch. 584, L. 1999, provided that this section applies retroactively, within the meaning of 1-2-109, to tax years beginning after December 31, 1998.

1991 Amendment: At beginning of (1) substituted "request annually the amount of tax to be levied by the governing body for port purposes, which request the governing body may in its discretion approve" for

"certify annually to the governing bodies creating it the amount of tax to be levied by the governing bodies"; in (4) and (6), in two places before "facilities", substituted "transportation, storage, or other" for reference to ports and transportation and storage; and in (6), after "facilities", inserted "as may be necessary or convenient to carry out the purposes of this part".

1989 Amendment: Inserted (7) authorizing the port authority to provide financial and other support to organizations promoting economic development.

Severability: Section 6, Ch. 507, L. 1989, was a severability clause.

Cross-References

Procurement of architectural, engineering, and land surveying services by governmental entities, Title 18, ch. 8, part 2.

7-14-1112. Rules. An authority may adopt, amend, and repeal such reasonable resolutions, rules, and orders as it considers necessary for its own administration, management, and governance as well as for the management, governance, and use of any transportation, storage, or other facility owned by it or under its control. No rule, order, or standard prescribed by the commission may be inconsistent with or contrary to any act of the congress of the United States or any regulation promulgated or standard established pursuant thereto. The authority shall keep on file at the principal office of the authority a copy of all its rules for public inspection.

History: En. Sec. 7, Ch. 456, L. 1985; amd. Sec. 3, Ch. 507, L. 1989; amd. Sec. 6, Ch. 640, L. 1991.

Compiler's Comments

1991 Amendment: In first sentence, before "facility", substituted "transportation, storage, or other" for "port or transportation and storage".

1989 Amendment: In first sentence, after "necessary", inserted "for its own administration, management, and governance as well as" and after "management" substituted "governance" for "government".

Severability: Section 6, Ch. 507, L. 1989, was a severability clause.

Cross-References

Montana Administrative Procedure Act not applicable to local governments, 2-4-102.

7-14-1113 through 7-14-1120 reserved.

7-14-1121. Supplementary powers. In addition to the general and special powers conferred by this part, each authority may exercise all powers incidental to the exercise of such general and special powers.

History: En. Sec. 8, Ch. 456, L. 1985.

7-14-1122 through 7-14-1124 reserved.

7-14-1125. Granting of operation and use privileges. (1) In connection with the operation of a transportation, storage, or other facility owned or controlled by an authority, the authority may enter into contracts, leases, and other arrangements for terms not to exceed 30 years with any persons:

(a) granting the privilege of using or improving the port authority facility or any portion or facility thereof or space therein for commercial purposes;

(b) conferring the privilege of supplying goods, commodities, services, or facilities at the port authority facility; and

(c) making available services to be furnished by the authority or its agents at the transportation, storage, or other facility.

(2) In each case the authority may establish the terms and conditions and fix the charges, rentals, or fees for the privileges or services, which must be reasonable and uniform for the same class of privilege or service and must be established with due regard to the property and improvements used and the expenses of operation to the authority.

History: En. Sec. 9, Ch. 456, L. 1985; amd. Sec. 7, Ch. 640, L. 1991.

Compiler's Comments

1991 Amendment: In (1) and (1)(c), before "facility", substituted "transportation, storage, or other" for "port or transportation and storage"; and in (1)(a) and (1)(b), after "port", substituted "authority" for "or transportation and storage".

7-14-1126. Port property — disposal. Except as may be limited by the terms and conditions of any grant, loan, or agreement authorized by 7-14-1136, an authority may sell, lease, or otherwise dispose of any transportation, storage, or other facility or other property or portion of or interest in the facility or property acquired pursuant to this part. The disposal by sale, lease, or otherwise must be in accordance with the laws of this state governing the disposition of other public property, unless a sale, lease, mortgage, or other disposition is made under 7-14-1133 to secure bonds of the authority.

History: En. Sec. 10, Ch. 456, L. 1985; amd. Sec. 8, Ch. 640, L. 1991; amd. Sec. 2, Ch. 22, L. 1995.

Compiler's Comments

1995 Amendment: Chapter 22 near end of second sentence, after "public property", inserted "unless a sale, lease, mortgage, or other disposition is made under 7-14-1133 to secure bonds of the authority"; and made minor changes in style. Amendment effective February 2, 1995.

1991 Amendment: Before "facility" substituted "transportation, storage, or other" for "port, transportation and storage".

7-14-1127 through 7-14-1130 reserved.

7-14-1131. Municipal tax levy. Subject to 15-10-420, the port authority may request annually from the governing bodies the amount of tax to be levied by each municipality participating in the creation of the port authority, and the municipality may levy the amount requested, pursuant to provisions of law authorizing cities and other political subdivisions of this state to levy taxes. The municipality shall collect the taxes requested by a port authority that it has authorized in the same manner as other taxes are levied and collected and make payment to the port authority. The proceeds of the taxes when and as paid to the port authority must be deposited in a special account or accounts in which other revenue of the authority is deposited and may be expended by the authority as provided for in this part. Prior to the issuance of bonds under 7-14-1133 and 7-14-1134, the port authority or the municipality may by resolution covenant and agree that the total amount of taxes then authorized by law, or the portion of the taxes that may be specified by the resolution, will be requested, levied, and deposited annually as provided in this section until the bonds and interest are fully paid.

History: En. Sec. 11, Ch. 456, L. 1985; amd. Sec. 9, Ch. 640, L. 1991; amd. Sec. 35, Ch. 584, L. 1999; amd. Sec. 42, Ch. 574, L. 2001.

Compiler's Comments

2001 Amendment: Chapter 574 deleted former second sentence that read: "The levy made may not exceed the maximum levy permitted by 67-10-402 for port purposes or any lower limit that may have been established by the municipality or municipalities in the resolution creating the authority." Amendment effective July 1, 2001.

1999 Amendment: Chapter 584 at beginning inserted reference to 15-10-420; and made minor changes in style. Amendment effective May 10, 1999.

Severability: Section 172, Ch. 584, L. 1999, was a severability clause.

Retroactive Applicability: Section 175, Ch. 584, L. 1999, provided that this section applies retroactively, within the meaning of 1-2-109, to tax years beginning after December 31, 1998.

1991 Amendment: Throughout section substituted "request" or "requested" for "certify" or "certified"; and in first sentence, after "annually", substituted "from" for "to" and in third sentence, after "authority", inserted "that it has authorized".

Attorney General's Opinions

Mandatory Duty of Governing Body to Levy Millage Certified by Port Authority: If the resolution creating a port authority confers plenary budget powers, the duty of the governing body to levy the

millage certified by the port authority commissioners is mandatory. (See 1999 and 2001 amendments.) 43 A.G. Op. 63 (1990).

7-14-1132. County tax levy. In counties supporting ports of port authorities, a levy authorized in 67-10-402 may be made for such purposes.

History: En. Sec. 12, Ch. 456, L. 1985.

Attorney General's Opinions

Mandatory Duty of Governing Body to Levy Millage Certified by Port Authority: If the resolution creating a port authority confers plenary budget powers, the duty of the governing body to levy the millage certified by the port authority commissioners is mandatory. (See 1999 and 2001 amendments to 7-14-1131.) 43 A.G. Op. 63 (1990).

7-14-1133. Bonds and obligations. (1) Except for providing financial support to a private development organization, including a corporation organized under Title 32, chapter 4, whose purpose is to advance the economic development of its jurisdiction and of the state and its citizens, an authority may borrow money for any of its corporate purposes and issue bonds, including refunding bonds, for any of its corporate purposes. The bonds may be in the form and upon terms as it determines, payable out of any revenue of the authority, including revenue derived from:

(a) any port or transportation and storage facility;

(b) taxes levied pursuant to 7-14-1131 or 67-10-402;

(c) grants or contributions from the federal government; or

(d) other sources.

(2) The bonds may be issued by resolution of the authority, without an election and without any limitation of amount, except that bonds may not be issued at any time if the total amount of principal and interest to become due in any year on the bonds and on any then-outstanding bonds for which revenue from the same source is pledged exceeds the amount of revenue to be received in that year, as estimated in the resolution authorizing the issuance of the bonds. The authority shall take all action necessary and possible to impose, maintain, and collect rates, charges, and rentals and to request taxes, if any are pledged, sufficient to make the revenue from the pledged source in that year at least equal to the amount of principal and interest due in that year.

(3) The bonds may be sold at public or private sale and may bear interest as provided in 17-5-102. Except as otherwise provided in this part, any bonds issued pursuant to this part by an authority may be payable as to principal and interest solely from revenue of the authority or from particular port, transportation, storage, or other facilities of the authority. The bonds must state on their face the applicable limitations or restrictions regarding the source from which principal and interest are payable.

(4) Bonds issued by an authority, county, or municipality pursuant to the provisions of this part are declared to be issued for an essential public and governmental purpose by a political subdivision.

(5) (a) For the security of bonds, the authority, county, or municipality may by resolution make and enter into any covenant, agreement, or indenture and may exercise any additional powers authorized to be exercised by a municipality under Title 7, chapter 7, parts 44 and 45. The sums required from time to time to pay principal and interest and to create and maintain a reserve for the bonds may be paid from any revenue referred to in this part, prior to the payment of current costs of operation and maintenance of the facilities.

(b) As further security for the bonds, the authority, with the approval of the governing body of the county or municipality that created the authority, may pledge, lease, sell, mortgage, or grant a security interest in all or any portion of its port, transportation, storage, or other facilities, whether or not the facilities are financed by the bonds. The instrument effecting the pledge, lease, sale, mortgage, or security interest may contain any agreements and provisions customarily contained in instruments securing bonds, as the commissioners of the authority consider advisable. The provisions must be consistent with this part and are subject to and must be in accordance with the laws of this state governing mortgages, trust indentures, security agreements, or instruments. The instrument may provide that in the event of a default in the payment of principal or interest on the bonds or in the performance of any agreement contained in the proceedings authorizing the bonds or instrument, the payment or performance may be enforced by mandamus or by the appointment of a receiver in equity. The receiver may collect charges, rental, or fees and may apply the revenue from the mortgaged property or collateral in accordance with the proceedings or the provisions of the instrument.

(6) Nothing in 7-14-1134 or this section may be construed to limit the use of port authority revenue, including federal and state money as described in 7-14-1136, to make grants and loans or to otherwise provide financial and other support to private development organizations, including corporations organized under the provisions of the development corporation act in Title 32, chapter 4. The credit of the state, county, or municipal government or their agencies or authorities may not be pledged to provide financial support to the development organizations.

History: En. Sec. 13, Ch. 456, L. 1985; amd. Sec. 22, Ch. 370, L. 1987; amd. Sec. 4, Ch. 507, L. 1989; amd. Sec. 10, Ch. 640, L. 1991; amd. Sec. 3, Ch. 22, L. 1995; amd. Sec. 3, Ch. 503, L. 2021.

Compiler's Comments

2021 Amendment: Chapter 503 in (4) at end deleted "within the meaning of 15-30-2110(2)(a)"; and made minor changes in style. Amendment effective January 1, 2024.

Effective Date — Applicability: Section 69, Ch. 503, L. 2021, provided: "(1) Except as provided in subsection (2), [this act] is effective January 1, 2024, and applies to income tax years beginning after December 31, 2023.

(2) [Sections 14, 31, 32, 54, 59 through 64, 66, 68, and 69] [15-30-2303, 15-32-104, 15-32-106, 50-51-114, 70-9-803, 75-2-103, 75-5-103, 87-2-102, and 87-2-105] and this section are effective January 1, 2022, and apply to income tax years beginning after December 31, 2021."

Severability: Section 68, Ch. 503, L. 2021, was a severability clause.

1995 Amendment: Chapter 22 in (3), at end of second sentence, inserted "or from particular port, transportation, storage, or other facilities of the authority"; inserted (5)(b) allowing an authority to pledge, lease, sell, mortgage, or grant a security interest in its facilities; and made minor changes in style. Amendment effective February 2, 1995.

1991 Amendment: In (2), in second sentence before "taxes", inserted "to request"; and made minor changes in style.

1989 Amendment: At beginning of (1) inserted exception clause relating to providing support to private development organization; and inserted (6) concerning the limit on the use of port authority revenues and prohibiting pledge of state, county, or municipal credit for support of private organizations.

Severability: Section 6, Ch. 507, L. 1989, was a severability clause.

1987 Amendment: Near beginning of (3) substituted "as provided in 17-5-102" for "at a rate not exceeding the limitation of 17-5-102".

7-14-1134. Method of funding deficiency — election required. (1) Subject to the conditions stated in this section, the governing body of a county or of a municipality having a population in excess of 10,000 may by resolution covenant that if at any time all revenue, including taxes, appropriated and collected for bonds issued pursuant to this part is insufficient to pay principal or interest then due, it will levy a general tax on all of the taxable property in the county or municipality for the payment of the deficiency. The governing body may further covenant that at any time a deficiency is likely to occur within 1 year for the payment of principal and interest due on the bonds, it will levy a general tax on all the taxable property in the county or municipality for the payment of the deficiency. The taxes are not subject to any limitation of rate or amount applicable to other county or municipal taxes but are limited to a rate estimated to be sufficient to produce the amount of the deficiency. If more than one local government is included in an authority issuing bonds pursuant to this part, the local governments may apportion the obligation to levy taxes for the payment of, or in anticipation of, a deficiency in the revenue appropriated for the bonds in a manner that the local governments may determine.

(2) The resolution must state the principal amount and purpose of the bonds and the substance of the covenant respecting deficiencies.

(3) A resolution is not effective until the question of its approval has been submitted to the qualified electors of the local government at an election called for that purpose by the governing body of the local government and held as provided in 15-10-425 and the question is approved by a majority of the electors voting.

(4) If a majority of the electors voting on the issue vote against approval of the resolution, the local government may not make the covenant or levy a tax for the payment of deficiencies pursuant to this section. The local government or authority may issue bonds under this part payable solely from the sources referred to in 7-14-1133(1).

History: En. Sec. 14, Ch. 456, L. 1985; amd. Sec. 48, Ch. 387, L. 1995; amd. Sec. 13, Ch. 495, L. 2001; amd. Sec. 43, Ch. 574, L. 2001; amd. Sec. 154, Ch. 49, L. 2015.

Compiler's Comments

2015 Amendment: Chapter 49 deleted former (3)(b) that read: "(b) The notice and conduct of the election is governed, to the extent applicable, as provided for municipal general obligation bonds in Title 7, chapter 7, part 42, for an election called by cities and towns, and as provided for county general obligation bonds in Title 7, chapter 7, part 22, for an election called by counties"; and made minor changes in style. Amendment effective November 4, 2015.

2001 Amendments — Composite Section: Chapter 495 in (3)(a) substituted "an election" for "a special election" and substituted "as provided in 15-10-425" for "in conjunction with a regular or primary election"; and made minor changes in style. Amendment effective October 1, 2001.

Chapter 574 near middle of (3)(a) substituted "an election" for "a special election" and substituted "held pursuant to 15-10-425" for "held in conjunction with a regular or primary election"; and made minor changes in style. Amendment effective July 1, 2001.

Style changes were slightly different in the chapters. In each case, the codifier chose appropriate text.

1995 Amendment: Chapter 387 in (1), in first sentence after "10,000", deleted "with respect to bonds issued pursuant to this part by the local government or by an authority in which the local government is included"; inserted (3)(a)(ii) requiring the special election to be held in conjunction with a regular or primary election; and made minor changes in style.

7-14-1135. Debt service fund. A port authority may create a debt service fund and accumulate therein a sum determined by the governing body, together with interest thereon, for the use, repairs, maintenance, and capital outlays of a port.

History: En. Sec. 15, Ch. 456, L. 1985.

7-14-1136. Federal and state money. An authority may accept, receive, receipt for, and spend federal and state money and other public or private money made available by grant or loan to accomplish any of the purposes of this part. All federal money accepted under this section must be accepted and spent by the authority upon terms and conditions prescribed by the United States and consistent with state law. All state money accepted under this section must be accepted and spent by the authority upon terms and conditions prescribed by the state.

History: En. Sec. 16, Ch. 456, L. 1985.

7-14-1137. Tax exemption. Any property in this state acquired by an authority for port purposes pursuant to the provisions of this part, any income derived by the authority from the ownership, operation, or control thereof, including property acquired, and income derived from organizations, including corporations organized under Title 32, chapter 4, whose purpose is to advance the economic development of its jurisdiction and of the state and its citizens, are exempt from taxation to the same extent as other property used for public purposes.

History: En. Sec. 17, Ch. 456, L. 1985; amd. Sec. 5, Ch. 507, L. 1989.

Compiler's Comments

1989 Amendment: After "control" expanded tax exemption to property and income derived by authority from private corporations organized to promote economic development.

Severability: Section 6, Ch. 507, L. 1989, was a severability clause.

Cross-References

Tax exemption for industrial park owned by port authority, 15-24-1902.

Commissioner Mathew introduced the following Resolution and moved its adoption. Commissioner Edwards seconded the motion and it was adopted by a unanimous vote.

R E S O L U T I O N

CREATING A PORT AUTHORITY

NO. 89-82

WHEREAS, Sections 7-14-1101 through 7-14-1137, MCA, provide for the creation by a county government of a Port Authority, whose composition, purposes, powers and duties are set forth in the statutes above-cited; and

WHEREAS, the Board of County Commissioners, Yellowstone County, held a public hearing on the 27th day of September, 1988, regarding the establishment of a Port Authority in Yellowstone County; and

WHEREAS, the Board of County Commissioners, Yellowstone County has determined that there exists in Yellowstone County a need for the stimulation of regional commerce, the development of employment opportunities, and an increase in taxable valuation in the Billings, Laurel, and county area; and

WHEREAS, Section 7-14-1104, MCA, lists among the enumerated purposes of a Port Authority the stimulation of commerce, the provision of maximum opportunities for employment, and the advancement of the general welfare and prosperity of the Port Authority jurisdiction; and

WHEREAS, the Board of County Commissioners, Yellowstone County, desires to create a Port Authority for the purposes specified in Section 7-14-1104, MCA, and with the powers authorized in Section 7-14-1111, MCA,

NOW THEREFORE, by the authority granted in Section 7-14-1101, MCA, the Board of County Commissioners, Yellowstone County, resolves as follows:

I
CREATION OF PORT AUTHORITY

There is created in Yellowstone County a Port Authority to be known as Montana Tradeport.

II
PURPOSES OF PORT AUTHORITY

The purposes of the Port Authority are enumerated in Section 7-14-1104(1), MCA, as follows:

A. Promote, stimulate, develop, and advance the general welfare, commerce, economic development, and prosperity of its jurisdiction and of the state and its citizens.

B. Endeavor to increase the volume of commerce within the jurisdiction of the port authority and the state through planning, advertising, acquisition, establishment, development, construction, improvement, maintenance, equipment, operation, regulation, and protection of ports and transportation and storage facilities that promote the safe, efficient, and economical handling of commerce.

C. Cooperate and act in conjunction with other organizations, public or private, in the development of commerce, industry, manufacturing, services, natural resources, agriculture, livestock, recreation, tourism, health care, and other economic activity in the state.

D. Support the creation, expansion, modernization, retention, and relocation of new and existing businesses and industry in the state and otherwise stimulate, assist in, and support the growth of all kinds of economic activity that will tend to promote commerce and business development, maintain the economic stability and prosperity of its jurisdiction and of the state, and thus provide maximum opportunities for employment and improvement in the standard of living of citizens of the state.

III
POWERS OF PORT AUTHORITY

A. The Montana TradePort Authority shall have all the powers necessary or convenient to carry out the purposes of this resolution, including but not limited to the following powers provided in Section 7-14-1111, MCA:

1. certify annually to Yellowstone County the amount of tax to be levied for port purposes;

2. sue and be sued, have a seal, and have perpetual succession;

3. execute such contracts and other instruments and take such other action as may be necessary or convenient to carry out the purposes of this resolution;

4. plan, establish, acquire, develop, construct, purchase, enlarge, improve, maintain, equip,

operate, regulate, and protect port and transportation and storage facilities. For such purposes an authority may, by purchase, gift, devise, lease, or otherwise, acquire real or personal property or any interest therein, including easements.

5. establish comprehensive port zoning regulations in accordance with the laws of this State; and not contrary to any zoning regulations adopted by Laurel, Billings, or Yellowstone County;

6. acquire, by purchase, gift, devise, lease, or otherwise, existing port and transportation and storage facilities. However, the authority may not acquire or take over any port or transportation and storage facility owned or controlled by another authority, county, municipality, or public agency without the consent of such authority, county municipality, or public agency;

7. provide financial and other support to organizations in its jurisdiction, including corporations organized under the provisions of the development corporation act in Title 32, chapter 4, whose purpose is to promote, stimulate, develop, and advance the general welfare, economic development, and prosperity of its jurisdiction and of the State and its citizens by stimulating, assisting in, and supporting the growth of all kinds of economic activity, including the creation, expansion, modernization, retention, and relocation of new and existing businesses and industry in the State, all of which will tend to promote business development, maintain the economic stability and prosperity of the State, and thus provide maximum opportunities for employment and improvement in the standards of living of citizens of the State.

B. Supplementary Powers. In addition to the general and special powers conferred by the law and this Resolution, the

authority may exercise all powers incidental to the exercise of such general and special powers, as provided in Section 7-14-1121, MCA.

C. Authority to Enter into Contracts, Leases, and Other Arrangements. As provided in section 7-14-1125, MCA, in connection with the operation of Montana Tradeport or facilities owned or controlled by it, the authority may enter into contracts, leases, and other arrangements for terms not to exceed thirty (30) years with any persons:

1. granting the privilege of using or improving the facilities or any portion or facility thereof or space therein for commercial purposes;

2. conferring the privilege of supplying goods, commodities, services, or facilities at the port facilities; and

3. making available services to be furnished by the authority or its agents at the port facilities.

In each case the authority may establish the terms and conditions and fix the charges, rentals, or fees for the privileges or services, which must be reasonable and uniform for the same class of privilege or service and must be established with due regard to the property and improvements used and the expenses of operation to the authority.

D. Disposal of Port Property. As provided by Section

7-14-1126, MCA, except as may be limited by the terms and conditions of any grant, loan, or agreement authorized by 7-14-1136, MCA, the authority may sell, lease, or otherwise dispose of any port, transportation and storage facility, or other property or portion thereof or interest therein acquired pursuant to this Resolution. Such disposal by sale, lease, or otherwise must be in accordance with the laws of this State governing the disposition of public property.

IV
RULE-MAKING AUTHORITY

Pursuant to Section 7-14-1112, MCA, the Port Authority may adopt, amend, and repeal such reasonable resolutions, rules and orders as it considers necessary for its own administration, management, and governance as well as for the management, government, and use of any port or transportation and storage facility owned by it or under its control. No rule, order, or standard prescribed by the Montana Tradeport Commission may be inconsistent with or contrary to any act of the Congress of the United States or any regulation promulgated or standard established pursuant thereto. The authority shall keep on file at its principal office a copy of all authority rules for public inspection.

V
COUNTY TAX LEVY

A. If the levy authorized by Sections 7-14-1132 and 67-10-402, MCA, is used to fund or partially fund the Port Authority, the authority shall certify annually to the Board of County Commissioners, Yellowstone County, the amount of tax to be levied. The Board may levy the amount certified, pursuant to provisions of law authorizing political subdivisions of this State to levy taxes. The levy made may not exceed two mills. Yellowstone County shall collect the taxes certified by the authority and approved by the Board of County Commissioners in the same manner as other taxes are levied and collected and make payment to the Port Authority. The proceeds of such taxes when and as paid to the authority must be deposited in a special account or accounts in which other revenues of the authority are deposited and may be expended by the authority only as provided by statute or by conditions on expenditure lawfully imposed by the Board of County Commissioners.

B. Pursuant to Section 7-14-1105(2), MCA, the Board of County Commissioners, Yellowstone County, does hereby provide that any County taxes or funds available or to become available to or required by law to be used by the County for port purposes shall be transferred as available to the Port Authority, upon

such conditions as the Board of County Commissioners may determine at the time of the transfer. Such condition with respect to any port funds derived from County taxes shall include at minimum, provision to the Board of County Commissioners the following:

1. Annual independent audit.
2. Mid-year review of Port Authority budget.
3. Copy of Port Authority audited financial statements.
4. Participation by Port Authority in County budget hearing process.

C. Prior to the issuance of bonds under Sections 7-14-1133 and 7-14-1134, MCA, the Port Authority or Yellowstone County may by resolution covenant and agree that the total amount of such taxes then authorized by law, or such portion thereof as may be specified by the resolution, will be certified, levied, and deposited annually as provided in this section until the bonds and interest thereon are fully paid.

VI
BONDS AND OBLIGATIONS

A. Pursuant to Section 7-14-1133(1), MCA, except for providing financial support to a private development organization, an authority may borrow money for any of its

corporate purposes and issue bonds therefor, including refunding bonds, in such form and upon such terms as it determines, payable out of any revenues of the authority, including revenues derived from any port or transportation and storage facility, levied taxes, grants or contributions from the Federal government, or other sources.

B. Pursuant to Section 7-14-1133(2), MCA, the bonds may be issued by resolution of the authority, without an election and without any limitation of amount, except that no bonds may be issued at any time if the total amount of principal and interest to become due in any year on such bonds and on any then outstanding bonds for which revenues from the same source are pledged exceeds the amount of such revenues to be received in that year, as estimated in the resolution authorizing the issuance of bonds. The authority shall take all action necessary and possible to impose, maintain, and collect rates, charges, rentals, and taxes, if any are pledged, sufficient to make the revenues from the pledged sources in such year at least equal to the amount of principal and interest due in that year.

C. Pursuant to Section 7-14-1133(3), MCA, the bonds may be sold at public or private sale and may bear interest as provided in Section 17-5-102, MCA. Except as otherwise provided in this resolution, any bonds issued pursuant to this resolution by the

authority may be payable as to principal and interest solely from revenues of the authority and shall state on their face the applicable limitations or restrictions regarding the source from which such principal and interest are payable.

D. Pursuant to Section 7-14-1133(4), MCA, bonds issued by the authority or Yellowstone County pursuant to the provisions of this resolution are for an essential public and governmental purpose by a political subdivision within the meaning of Section 15-3-111(2)(a), MCA, and are exempt from taxation.

E. Pursuant to Section 7-14-1134(5), MCA, for the security of any such bonds, the authority or Yellowstone County may by resolution make and enter into any covenant, agreement, or indenture and may exercise any additional powers authorized to be exercised by a municipality under Title 7, Chapter 7, Parts 44 and 45. The sums required from time to time to pay principal and interest and to create and maintain a reserve for the bonds may be paid from any revenues referred to in this resolution, prior to the payment of current costs of operation and maintenance of the facilities.

F. Pursuant to Section 7-14-1133(6), MCA, under no circumstances may the credit of the State, County, or municipal governments be pledged to support private development

organizations.

VII
METHOD OF FUNDING DEFICIENCY

With respect to bonds issued pursuant to Section 7-14-1133, MCA, by the County or by a Port Authority in which the County is included, the Board of County Commissioners, Yellowstone County, may by resolution covenant to fund a deficiency in the payment of such bonds according to the provisions of Section 7-14-1134, MCA. The Board of County Commissioners shall be subject to the conditions stated in Section 7-14-1134, MCA, in the adoption and implementation of any such resolution to fund a deficiency, including but not limited to the condition of voter approval as prescribed in Section 7-14-1134(3), MCA.

VIII
DEBT SERVICE FUND

Pursuant to Section 7-14-1135, MCA, the Port Authority created herein may create a debt service fund and accumulate therein a sum determined by the Board of County Commissioners, together with interest thereon, for the use, repairs, maintenance, and capital outlays of a port.

IX
ASSISTANCE FROM LOCAL GOVERNMENTS

The activities of the Port Authority are public and

governmental in nature. As provided by Section 7-14-1105, MCA, for the purpose of aiding and cooperating in the planning, undertaking, construction, or operation of ports and facilities pursuant to Section 7-14-1101, MCA, et seq., any local government, with or without consideration, upon such terms as it may determine, may:

A. lend or donate money to the authority;

B. provide that all or a portion of the taxes or funds available or to become available to or required by law to be used by Yellowstone County for port purposes be transferred or paid directly to the Port Authority as such funds become available to the local government;

C. cause water, sewer, or drainage facilities, or any other facilities that they are empowered to provide, to be furnished adjacent to or in connection with the port or port facilities;

D. dedicate, sell, convey, or lease any of their interest in any property or grant easements, licenses, or any other rights or privileges therein to the authority;

E. furnish, dedicate, close, pave, install, grade, regrade, plan or replan streets, roads, roadways, and walks from established streets or roads to such port or facilities;

F. do any and all things, whether or not specifically authorized in this section and not otherwise prohibited by law, that are necessary or convenient to aid and cooperate with the authority in the planning, undertaking, construction, or operation of ports facilities;

G. enter into agreements with the authority respecting actions to be taken.

X
EXPENDITURE OF FUNDS MADE AVAILABLE BY GRANT OR LOAN

A. Pursuant to Section 7-14-1136, MCA, the authority may accept, receive, receipt for, and spend Federal and State money and other public or private money made available by grant or loan to accomplish any of the purposes of this resolution. All Federal money accepted under this section must be accepted and spent by the authority upon terms and conditions prescribed by the United States and consistent with State law. All State money accepted must be accepted and spent by the authority upon terms and conditions prescribed by the State.

B. Pursuant to Section 7-14-1105(1), MCA, all County funds made available by loan or grant shall be accepted and spent by the Port Authority only upon such terms, with or without consideration, as the Board of County Commissioners may determine upon the occurrence of any such loan or grant.

XI
TAX EXEMPTION

Pursuant to Section 7-14-1137, MCA, any property in this State acquired by the authority for port purposes pursuant to the provisions of this Resolution, and any income derived by the authority from the ownership, operation, or control thereof,

including property acquired, and income derived from organizations, including corporations organized under Title 32, Chapter 4, whose purpose is to advance the economic development of the jurisdiction and of the State and its citizens, are exempt from taxation to the same extent as other property used for public purposes.

XII
COMPOSITION AND APPOINTMENT OF PORT AUTHORITY COMMISSION

A. Number and Terms. The powers of Montana Tradeport are vested in nine (9) Port Authority commissioners. The initial commissioners and their successors shall be appointed by the Board of County Commissioners, Yellowstone County. The commissioners who are first appointed will be designated to serve for terms as follows: one (1) member for one (1) year; two (2) members for two (2) years; two (2) member for three (3) years; two (2) members for four (4) years; and two (2) members for five (5) years. The determination of length of term for each initial Port Commissioner shall be made at the time of appointment. Thereafter, each commissioner must be appointed for a term of five (5) years except that vacancies occurring other than by expiration of a term must be filled for the unexpired term by the Board of County Commissioners, Yellowstone County as delineated

in the following paragraph B. All Port Commissioner vacancies shall be posted for public notice in the Yellowstone County Courthouse.

B. Nomination of Port Authority Commissioners. A nominating committee shall nominate at least nine (9) candidates for approval as the first Port Authority commissioners by the Yellowstone County Board of County Commissioners. The nominating committee shall consist of five (5) persons: three (3) elected officials including one (1) member appointed by the Laurel City Council and two (2) elected officials appointed by the Billings City Council; the Director of the County Economic Development Office; and one (1) person picked at large by the other members of the nominating committee. For the first five (5) years or until his resignation, whichever occurs first, the at-large member shall be Wayne Schile, currently publisher of The Billings Gazette.

As a vacancy in the Port Authority Board occurs or is expected to occur, the nominating committee must make at least two (2) nominations per vacancy.

The nominating committee shall nominate candidates from among individuals who have submitted an application for Port Commissioner accompanied by a resumé of relevant qualifications.

C. Appointment of Port Authority Commissioners. Following the nomination of enough candidates to allow the Board of County Commissioners, Yellowstone County, to fill any vacancy (or initial appointment) on the Port Authority Commission, the Board of County Commissioners, Yellowstone County, shall appoint, by majority vote, those candidates whose nominations are approved. Each appointment shall be an individual appointment, individually approved. The certificates of appointment of the Port Commissioners must be filed with the Port Authority. Each authority commissioner shall hold office until a successor has been appointed as herein provided.

D. Qualifications of Port Authority Commissioners. Port Authority Commissioners shall be appointed on the basis of qualifications including but not limited to the following:

1. Substantial successful experience in any of the following areas of business or employment in Montana: commerce, industry, transportation, manufacturing, services, natural resources, agriculture, livestock, recreation, tourism, health care or other recognized type of economic activity;

2. An established reputation in the region for competence in a given field of economic activity;

3. An exhibited support for entrepreneurism and enterprise;

4. Support of the purposes of Montana Tradeport.

5. Commitment to the public interest and trust.

In addition, seven (7) of the nine Port Authority Commissioners must be residents of Yellowstone County. Non-resident Commissioners must own property within Yellowstone County in order to qualify for appointment to the Port Authority.

XIII
INTERNAL MANAGEMENT OF PORT AUTHORITY AND CONDUCT OF BUSINESS

A. Chair, Vice-Chair, Staffing.

1. Pursuant to Section 7-14-1103(2), MCA, the Port Authority Commissioners must elect from their number a chairman and vice-chairman. The Authority may employ an executive director, secretary, technical experts, and such other officers, agents, and employees, permanent and temporary, as required and as allowed by its budget and shall determine their qualifications, duties, and compensation. An authority may delegate to one or more of its agents or employees such powers or duties as it considers proper.

2. Until July 1, 1990, the Director of the Yellowstone County Economic Development Office may act with the consent of the Port Authority Commissioners and the Board of County Commissioners as Interim Executive Director of the Port Authority

Subject to the constraints on his/her time by the demands of the Economic Director position and subject to the desires of the Port Authority Commissioners, it shall be the responsibility of the Interim Director to do the following:

a. Prepare proposed operating and capital improvement budgets.

b. Coordinate and develop potential projects with commerce and industry.

c. Seek funding for Port operations and projects.

d. Coordinate with and support development of Tradeport Development Corporation of Montana.

e. Coordinate Port activities with and keep informed the local governing bodies of Billings, Laurel, and Yellowstone County.

f. Promote the purpose of Montana Tradeport.

B. Quorum. Pursuant to Section 7-14-1103(1), MCA, a majority of Port Authority Commissioners shall constitute a quorum for the purpose of conducting business of the Authority and exercising its powers for all other purposes. Action may be taken by the Authority upon a vote of not less than a majority of the Commissioners present.

C. Public and Governmental Functions. Pursuant to Section 7-14-1104(2), MCA:

> The acquisition of any land or interest in land pursuant to this part, the planning, acquisition, establishment, development, construction, improvement, maintenance, equipment, operation, regulation, and protection of ports and transportation and storage facilities, and the exercise of any powers granted to port authorities and other public agencies to be severally or jointly exercised are public and governmental functions, exercised for a public purpose, and matters of public necessity. All land and other property and privileges acquired and used by or on behalf of any authority or other public agency, as provided in this part, must be used for public and governmental purposes and as a matter of public necessity.

D. Standards of Conduct. The Port Authority Commissioners appointed hereunder shall be governed by applicable State law relating to conduct of public business, including but not limited to the following:

1. The rules of conduct for local government officers provided for in Section 2-2-125, MCA;

2. The acts related to interest in contracts and claims proscribed in Section 2-2-201, MCA, et seq.;

3. The statutes relating to nepotism in Sections 2-2-301, MCA, et seq.;

4. The requirements for public participation in governmental operations prescribed in Sections 2-3-101, et seq.;

5. The open meeting requirements prescribed in Sections

2-3-201, MCA, et seq..

6. All federal and state laws prohibiting discrimination on the basis of race, sex, religion, political ideas, age, marital status, or physical or mental handicap.

PASSED AND ADOPTED 4th day of December, 1989.

BOARD OF COUNTY COMMISSIONERS
YELLOWSTONE COUNTY, MONTANA

Dwight MacKay - Chairman

ATTEST:

Merrill H. Klunde
Clerk and Recorder

Grace Edwards - Member

Mike Mathew - Member

(PTAUTH)

RESOLUTION NO. 92-95

A RESOLUTION AMENDING RESOLUTION NO. 89-92, WHICH WAS A RESOLUTION CREATING THE MONTANA TRADEPORT AUTHORITY

WHEREAS, the Yellowstone County Commissioners passed Resolution No. 89-92, on December 4, 1989, and this Resolution created the Montana Tradeport Authority;

WHEREAS, the Yellowstone County Commissioners now wish to amend that Resolution to change Section XII, paragraph B, Nomination of Port Authority Commissioners, page 15 of the original Resolution;

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF YELLOWSTONE COUNTY:

1. That Resolution No. 89-92, Section XII, paragraph B, page 15 shall be amended as follows:

B. Nomination of Port Authority Commissioners. The nominating committee shall consist of five (5) persons: three (3) elected officials including one (1) elected official appointed by the Laurel City Council and two (2) elected officials appointed by the Billings City Council; one (1) person selected by the Board of County Commissioners; and one (1) person selected by the Port Authority Commissioners. Appointing entities shall reaffirm their appointments annually.

As a vacancy in the Port Authority Board occurs or is expected to occur, the nominating committee must make at least two (2) nominations per vacancy.

The nominating committee shall interview and nominate candidates from among individuals who have submitted an application for Port Commissioner accompanied by a resume of relevant qualifications.

CERTIFICATION AND EFFECTIVE DATE. The Clerk and Recorder shall certify this Resolution and Resolution No. 92-95 to the County Election Official as provided by law, and this Resolution shall be effective upon adoption.

DONE this 15th day of December, 1992.

BOARD OF COUNTY COMMISSIONERS
YELLOWSTONE COUNTY, MONTANA

James A. Ziegler, Sr., Chair

Mike Mathew, Member

H. Elwood English, Member

ATTEST:

Merrill H. Klundt
Clerk and Recorder

RESOLUTION NO. 94 - 12

A RESOLUTION AMENDING RESOLUTION NO. 92-95, WHICH WAS A RESOLUTION AMENDING THE ORIGINAL RESOLUTION CREATING THE MONTANA TRADEPORT AUTHORITY

WHEREAS, the Yellowstone County Commissioners passed Resolution NO. 89-92, on December 4, 1989, and this Resolution created the Montana Tradeport Authority;

WHEREAS, the Yellowstone County Commissioners passed Resolution No. 92-95 on December 15, 1992, which amended Resolution No. 89-92, changing Section XII, paragraph B, Nomination of Tradeport Authority Commissioners;

WHEREAS, the Yellowstone County Commissioners now wish to amend Resolution No. 92-95, to change Section XII, Paragraph B, Nomination of Port Authority Commissioners;

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF YELLOWSTONE COUNTY:

1. That Resolution No. 92-95, Section XII, paragraph B, shall be amended as follows:

B. Nomination of Port Authority Commissioners. The nominating committee shall consist of five (5) persons: three (3) elected officials including (1) elected official appointed by the Laurel City Council and two (2) elected officials appointed by the Billings City Council; one (1) person selected by the Board of County Commissioners; and one (1) person selected by the Port Authority Commissioners. Appointing entities shall reaffirm their appointments annually.

As a vacancy in the Port Authority Board occurs or is expected to occur, the nominating committee must make at least two (2) nominations per vacancy.

The nominating committee shall interview and nominate candidates from among individuals who have submitted an application for Port Commissioner accompanied by a resume of relevant qualifications.

If the nominating committee has interviewed potential Port Authority Commissioners within the past six (6) months and another vacancy occurs, the nominating committee has the option to choose two (2) or more eligible candidates from an existing candidate list and present those nominations to the Board of County Commissioners.

CERTIFICATION AND EFFECTIVE DATE. The Clerk and Recorder shall certify this Resolution No. 94-12 to the County Election Official as provided by law, and this Resolution shall be effective upon adoption.

DATED this 15th of March, 1994.

BOARD OF COUNTY COMMISSIONERS
YELLOWSTONE COUNTY, MONTANA

James A. Ziegler, Sr., Chair

(SEAL)

Mike Mathew, Member

Bill Kennedy, Member

ATTEST:

Merrill H. Klundt
Clerk and Recorder
Yellowstone County, Montana

CARBON COUNTY
Planning Office
P.O. Box 466, Red Lodge, MT 59068
Main: (406) 446-1694
Fax: (406) 446-2640

PROJECT MEMORANDUM

TO: Carbon County Board of County Commissioners

FROM: Forrest J. Mandeville, AICP – Contract Planner

DATE: May 22, 2024

RE: Hellroaring Ranch Subdivision Preliminary Plat Application

REQUIRED COMMISSION ACTION: Review, receive public comment, and recommendation to approve, conditionally approve, or deny the proposed preliminary plat.

RECOMMENDATION: **Approval with Conditions**

RECOMMENDED MOTION: *Having reviewed and considered the application materials, project memorandum, public comments, Planning Board recommendation, and all of the information presented, I hereby move to **approve** of the Hellroaring Ranch Subdivision, with the findings and conditions included in the project memorandum.*

Project/Application Summary:

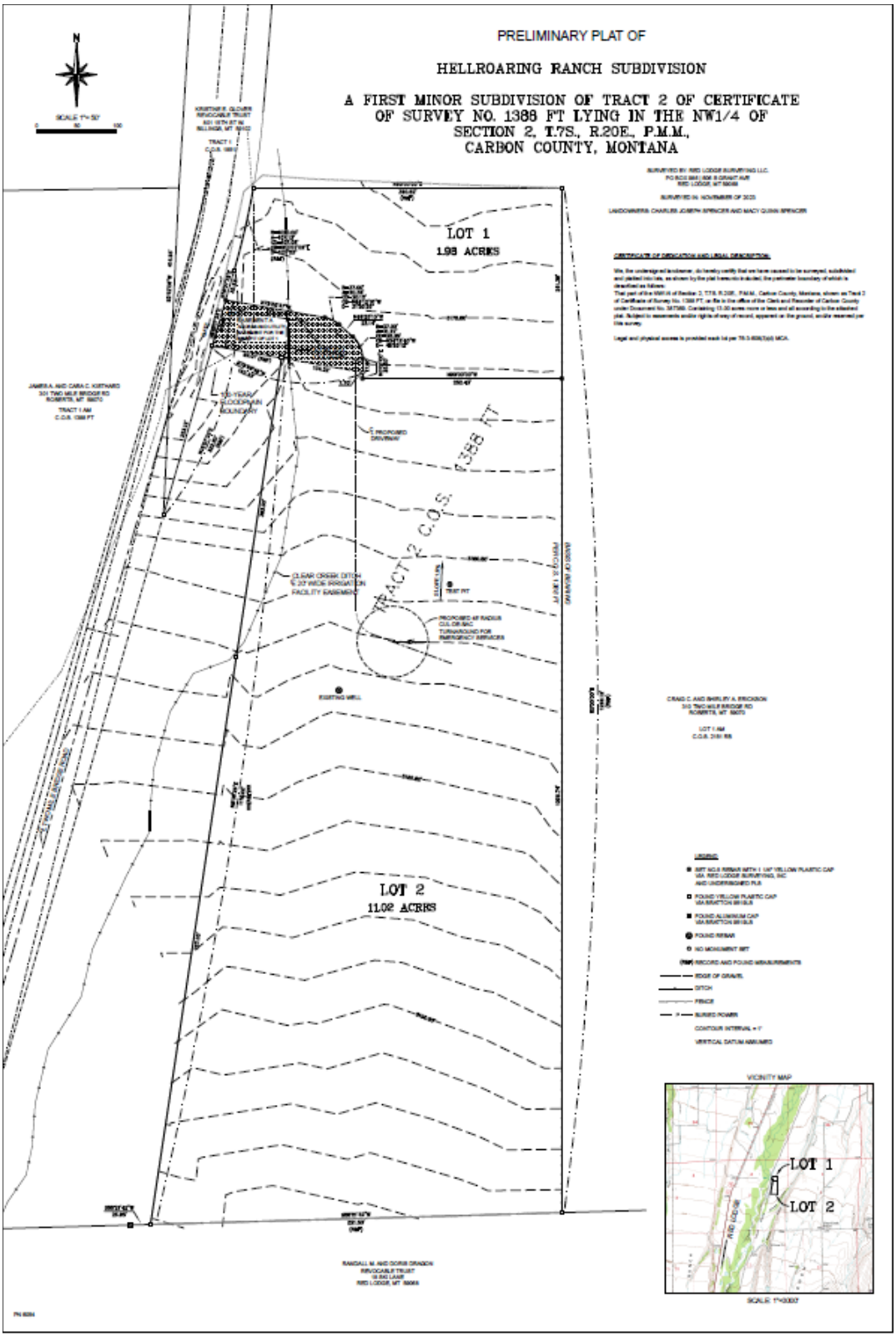
Red Lodge Surveying, on behalf of Charles Joseph Spencer and Macy Quinn Spencer, has submitted a preliminary plat application for a 2-lot minor subdivision. The subdivision area is approximately 13 acres; proposed lots are 11.02 and 1.98 acres in size. Engineering West is the engineer on the project.

The subject property is located on Two Mile Bridge Road, approximately one mile north of the intersection with Clear Creek School Road, and three miles from the intersection with Highway 212. The property is legally described as Tract 2 of COS 1388 FT, lying in the NW4 of Section 2, Township 7 South, Range 20 East, P.M.M., Carbon County, Montana.

Required Commission Action:

Under the adopted Carbon County Subdivision Regulations, following a public meeting, the Commission shall approve, conditionally approve, or deny the preliminary plat within 35 working days of a determination of sufficiency. The application was determined to be sufficient on May 6, 2024, so a decision must be reached by June 25, 2024.

The basis for the Commissioners' decision is whether the proposed subdivision application, the preliminary plat, the Planning Board's comments and recommendation, and any additional information authorized by law demonstrates that the proposed subdivision would meet the requirements of the Montana Subdivision and Platting Act and the Carbon County Subdivision regulations.



Preliminary Plat

Subdivision Regulations – Compliance Review/Findings Summary: (Section references are to the Carbon County Subdivision Regulations unless otherwise noted)

a. *Relevant evidence relating to the public health, safety, and welfare*

Each lot is proposed to utilize individual drainfields located on the lot it serves. Lot 1 is proposed to utilize a cistern and Lot 2 is proposed to utilize an existing well for potable water supply. Both lots are subject to review through the Montana Department of Environmental Quality (DEQ), though the well and drainfield for Lot 2 were previously reviewed and approved by DEQ (E.Q. #23-1377).

Access is proposed to be provided to the subdivision by a shared approach from Two Mile Bridge Road. There is an existing approach in the location. The approach and access will be located on Lot 2; Lot 1 will have an easement for access and utilities.

Private covenants are proposed to establish additional restrictions on the subdivision, including a prohibition on re-subdivision into lots of less than 2 acres.

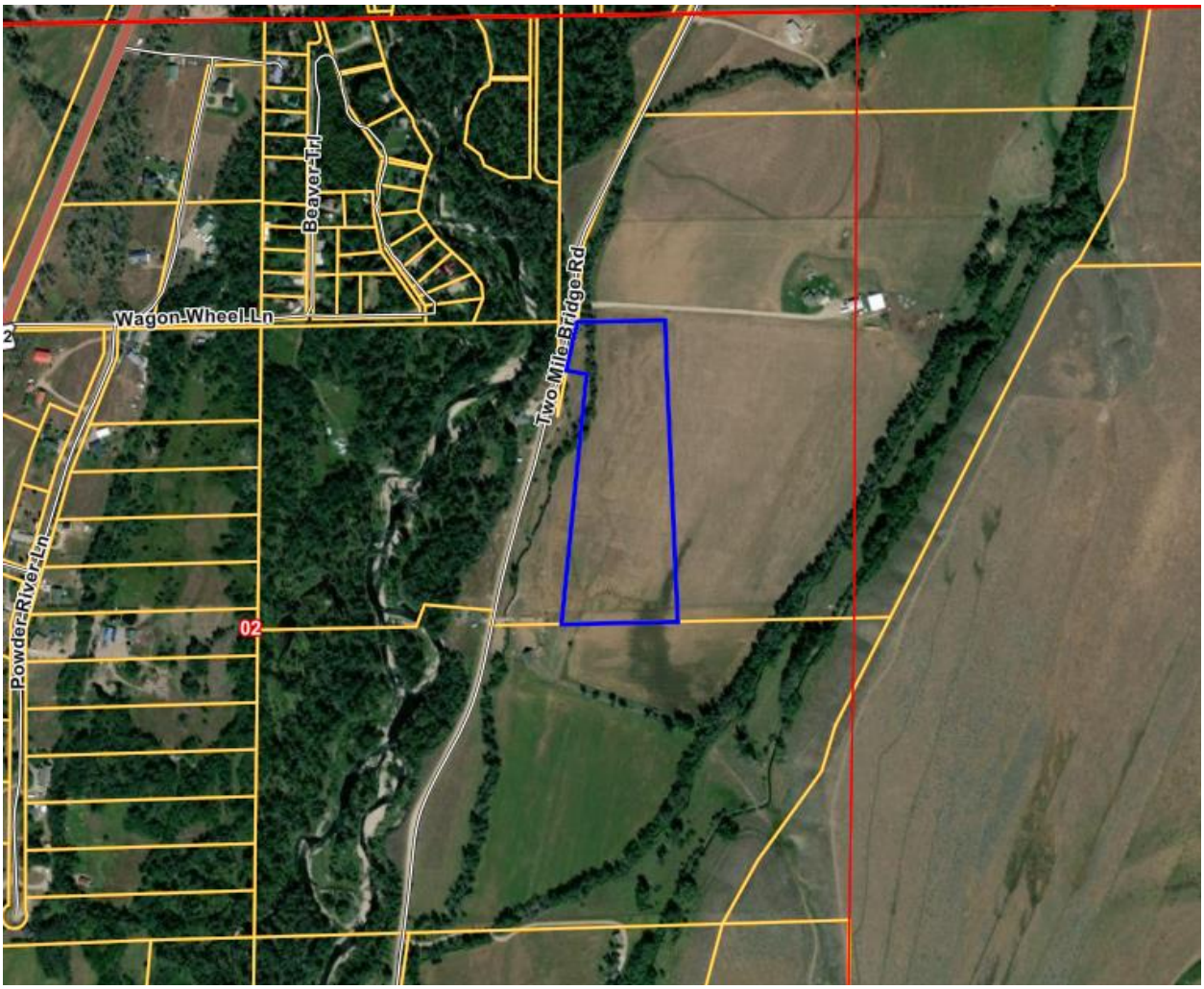
b. *Summary of Probable Impacts*

Except where exempt by state law, all subdivisions must be reviewed for the specific, documentable, and clearly defined impact on agriculture, agricultural water user facilities, local services, the natural environment, wildlife, wildlife habitat, and public health and safety.

- Effect on agriculture: The site is classified by the USDA as farmland of statewide importance. The property appears to have been used as hay and grazing land recently. This use would likely cease as a result of the subdivision and subsequent residential development. The covenants submitted with the preliminary plat application indicate pig farms would not be allowed, nor would more than 24 chickens be allowed. Lot 2 is big enough to allow a small degree of agricultural uses if desired by future owners.

  The property is in an area of large-lot residential and agricultural lands. There are agricultural uses to the south and east and north. Land to the west is the remaining parcel from when this tract was created by family transfer three years ago and appears to still be owned by the applicants of the family transfer.

  Finding: The subdivision will remove some property from agricultural production, but because the subdivision is in close proximity to similar uses, there should be minimal adverse impacts on agriculture as a result of this subdivision.



Subdivision (Blue) and Vicinity

- Effect on agricultural water user facilities: The Clear Creek Ditch runs along the west side of the subdivision and a 20-foot-wide easement is shown on the preliminary plat. The Subdivision Regulations, Section V-A-18 requires the following statement appear on the final plat: "Nothing herein nor any covenant shall diminish the unobstructed use and maintenance of the existing water delivery ditches, pipelines, and facilities in the subdivision that are necessary to convey water through the subdivision to land adjacent or to beyond the subdivision in quantities and in a manner that are consistent with historic and legal rights."

  There is an existing ground water right for Lot 2 for domestic use.

  The shared approach will cross Clear Creek Ditch. There is an existing culvert in place.

  Finding: As long as an easement for Clear Creek Ditch is provided on the plat, and the required language appears on the plat, and water rights are respected, there should be

minimal adverse impacts on agricultural water user facilities as a result of this subdivision.

- Effect on local services: The Carbon County Sherriff's office will provide law enforcement services to the subdivision. According to documents provided in the subdivision application, Sheriff Josh McQuillan reports the ability to serve the area with existing personnel and equipment with a response time of 15-20 minutes.

  Finding: This subdivision will have minimal adverse impacts on law enforcement, since services can be provided.

  The Red Lodge Fire Department provides fire protection in the area. Deputy Fire Chief Tim Ryan notes that due to the density of the subdivision, one of the lots being less than 3 acres, it does fall into the "high risk" category. Deputy Chief Ryan requested the Fire Control and Prevention Plan require fire resistant building materials. The submitted Fire Control and Prevention Plan does contain a requirement that Lot 1, which is under three acres, contain only buildings constructed of fire-resistant materials.

  Finding: This subdivision will have minimal adverse impacts on fire protection in the area if a Fire Control and Prevention Plan is in place requiring the use of fire-resistant material in buildings. The Fire Control and Prevention Plan should be filed with the final plat.

  The shared approach and driveway is required to meet the requirements of the Subdivision Regulations for multi-residence road design, which requires a 22-foot wide driving surface in a 60-foot wide easement. A 45-foot radius cul-de-sac is proposed for the end of the driveway, near the homesite on Lot 2.

  Two Mile Bridge Road is a gravel-surfaced road owned and maintained by the County. Two Mile Bridge Road has regularly scheduled maintenance and snowplowing according to the Road Priority Map on the Road and Bridge Department website. Additional traffic may result in more requests for maintenance and more complaints regarding dust control. The County has a process in which landowners can apply to the County to coordinate spraying for dust control.

  As more lots develop on gravel County roads, impacts will increase through demands for a higher level of maintenance. The County may eventually need to seriously consider requiring RSIDs for road maintenance, the adoption of impact fees, or other mitigation measures to address these cumulative impacts.

  Finding: Impacts on the road system can be mitigated by requiring the shared driveway and cul-de-sac be constructed to the standards required in the Subdivision Regulations and the construction certified by a registered professional engineer. (Section V-A-10.c. and Table 1)

  Beartooth Electric Cooperative provides electrical services in the area and reports the ability to serve the subdivision. Utility easements should be shown on the final plat per

section V-A-15.a., and the standard utility language should be placed on the final plat, per section V-A-15.h. of the Subdivision Regulations: "The undersigned hereby grants unto each and every person, firm or corporation, whether public or private, providing or offering to provide telephone, telegraph, electric, power, gas, cable television, water or sewer service to the public, the right to the joint use of an easement for the construction, maintenance, repair and removal of the lines and other facilities, in, over, under and across each area designated on this plat as "Utility Easement" to have and hold forever."

Finding: There will be no significant adverse impacts on utility providers if utility easements are shown on the plat and the standard utility easement language is provided.

Documents submitted with the preliminary plat application estimate that the subdivision could generate an additional 1-5 children in the Red Lodge School District, and that the subdivision is on an existing bus route. Of course, individual circumstances of future lot owners could impact these estimates. A subdivision may not be denied based solely on impacts on educational services (76-3-608(1), MCA).

Finding: Hellroaring Ranch Subdivision should have minimal impacts on area schools due to the relatively small size of the subdivision.

- Effect on the natural environment: New septic/drainfield systems are proposed for each lot. An existing well will serve Lot 2 and a cistern will be used for potable water supply for Lot 1.

  Review and approval of new septic, well, solid waste, and stormwater drainage is required by the Montana Department of Environmental Quality (DEQ) and the Carbon County Sanitarian, as appropriate. (See Sections IV-B-8.b, V-A-11 through 14, and MCA 76-3-622). Facilities on Lot 2 have been reviewed and approved by DEQ (E.Q.#23-1377).

  Finding: New water, wastewater, stormwater drainage, and solid waste disposal will not have an adverse impact on the natural environment if DEQ and County Sanitarian review and approval is required to be obtained prior to final plat.

  A recent order from the Montana First Judicial District Court regarding a proposed subdivision in Broadwater County suggests that counties should require subdividers provide as much detail as possible on the impacts of a proposed subdivision on the potentially affected aquifer and should not simply rely on the Montana Department of Natural Resources and Conservation's (DNRC) water right predetermination process. The Court also found errors with the DNRC process, which may result in only a single exempt well being allowed in each subdivision, regardless of water use of the whole subdivision.

  The acquisition of a new water right for a subdivision is not typically required unless the combined subdivision lots will use 10 acre-feet of water per year, or if a well will pump more than 35 gallons per minute. The subdivision application indicates there is an existing domestic well and associated water rights on Lot 2. Lot 1 will utilize a cistern.

If existing water rights are interfered with either as part of a subdivision or otherwise, DNRC has an adjudication process that can result in later appropriations being limited to protect senior water right holders.

Finding: There should be minimal impacts on the aquifer since only one well will be utilized, which is existing has and has a water right for domestic use.

The applicant submitted a Weed Inspection Report completed by Carbon County Weed District Coordinator Brian Ostwald dated September 11, 2023. The report indicates hoary alyssum, houndstongue, Canada thistle, and spotted knapweed were present. The report noted that the hay ground was clean and the weeds were present where ground had been disturbed to run power to the site. Treatment will be needed after more ground is disturbed. No weed bond was required.

Finding: There should be minimal impacts on the natural environment due to the proliferation of noxious weeds since there were few weeds within the project area and there are mechanisms to ensure future owners address weed proliferation if it were to occur in the future.

- Effect on wildlife: Wildlife does frequent the area. However, since the project is in close proximity to existing similar development, no significant adverse impacts on wildlife is anticipated other than what may have already occurred.

  Finding: No significant adverse impacts to wildlife is anticipated due to the proximity of existing similar development.

- Effect on wildlife habitat: The subdivision is within General Sage Grouse Habitat according to the Montana Sage Grouse Habitat Conservation Program. Comments from the Program submitted with the application indicate mitigation will be in the form of a contribution to the Stewardship Account in the amount of $261.97. The Program also required mitigation of noxious weeds on the property.

  There does not appear to be other critical wildlife habitat on the site.

  Finding: There should be no significant impact on wildlife habitat if mitigation through the Montan Sage Grouse Habitat Conservation Program is completed and noxious weeds are kept from proliferating on the property.

- Effect on public health and safety: The Carbon County Sheriff's office provides law enforcement service in the area; the Red Lodge Fire Department provides fire protection in the area. See discussion and findings under Effect on Local Services.

  DEQ and County Sanitarian approval of well and septic provisions is required. See discussion under effects on the natural environment.

  Finding: There should be minimal impacts on public health and safety if recommended conditions are imposed.

Sage Grouse Habitatat Subdivision Location

c. Whether the application and plat conform to the provisions of the following:

i. The Montana Subdivision and Platting Act: The Plat has been prepared and processed in accordance with the Montana Subdivision and Platting Act (MSPA). The final plat should include a notation that each lot has legal and physical access (76-3-608(3)(d), MCA, and Section IV-B-10.f.v of the Carbon County Subdivision Regulations).

Finding: Upon compliance with the recommended conditions of approval and adherence to the process outlined in statute, the subdivision will have complied with the MSPA.

ii. Compliance with Survey Requirements: The final plat must be in compliance with the requirements of Title 76, Chapter 3, Part 4, MCA, as well as Uniform Standards for Final Subdivision Plats (24.183.1107, ARM). A requirement that, prior to filing, the plat be submitted to the County's Examining Land Surveyor (ELS), and that any comments of the ELS be addressed will ensure survey requirements are followed (Section IV-C-3.b.vi of the Carbon County Subdivision Regulations).

Finding: Upon review by the ELS and the addressing of any comments thereof, survey requirements will have been adhered to.

iii. The Carbon County Subdivision Regulations: The subdivision, once conditions have been met, will conform to the requirements of the adopted Subdivision Regulations.

The final plat must be substantially similar to the preliminary plat application, except as modified by conditions. If the final plat differs substantially from the preliminary plat,

additional review may be required (Section IV-C-5.b of the Carbon County Subdivision Regulations).

The Carbon County Subdivision Regulations, Section IV-B-11 states that a preliminary plat approval is in force for two years. If a final plat is not filed within that timeframe, an extension must be granted or a new application submitted. The County is under no obligation to grant such an extension.

Private covenants are proposed for the subdivision. Though the County does not enforce such covenants, there are standards with which covenants must comply that are outlined in the Subdivision Regulations, Section V-A-23.

The Subdivision Guarantee indicates a Deed of Trust is in place on the property through the Bank of Bridger. The application included a consent to the subdivision signed by Lance Frank of the Bank of Bridger.

A condition requiring final plat preparation to be in conformance with the Subdivision Regulations will ensure compliance with County requirements, even if not specifically discussed in this memorandum.

Finding: To ensure compliance with the Subdivision Regulations, conditions should be required to ensure the final plat is substantially similar to the preliminary plat and plans, that the final plat is filed within two years of preliminary plat approval, that private covenants are compliant with the standards outline din the Subdivision Regulations, and that the final plat be submitted in conformance with the Subdivision Regulations.

iv. Applicable Zoning Regulations: The Carbon County Development Regulations require a Group 1 Development Permit be obtained prior to residential development.

Finding: The subdivision is in compliance with the Development Regulations as far as applicable. Development permits will need to be obtained prior to development.

v. Other regulations in effect in the area of the proposed subdivision: There are no other known regulations in effect for the area with which the subdivision would conflict. Private covenants are proposed and should be prepared per the requirements in the Subdivision Regulations and filed with the subdivision.

Finding: The subdivision is not in conflict with any known regulations. Private covenants should meet the requirements of Section V-A-23 and be filed with the final plat.

vi. Whether DEQ has approved the subdivision for proposed subdivisions that will create parcels of less than twenty (20) acres: DEQ approval is required prior to final plat, as both lots are under 20 acres. (Sections IV-B-8.b.i and V-A-11, 12,13, and 14 of the Carbon County Subdivision Regulations).

Finding: DEQ review and approval of the subdivision should be a condition of final plat approval.

vii. Whether the subdivider has demonstrated that there is an adequate water source and at least one are for a septic system and a replacement drainfield for each lot for a proposed subdivision that will create one or more parcels containing twenty (20) acres or more: There are no lots over 20 acres.

d. Compliance with Growth Policy:

State law, 76-1-605, MCA, requires that after the adoption of a growth policy, the governing body must be "guided by and give consideration to the general policy and pattern of development set out in the growth policy" in the "authorization, construction, alteration, or abandonment of public ways, public places, public structures, or public utilities; authorization, acceptance, or construction of water mains, sewers, connections, facilities, or utilities; and adoption of zoning ordinances or resolutions." However, statute also states that "A growth policy is not a regulatory document and does not confer any authority to regulate that is not otherwise specifically authorized by law or regulations adopted pursuant to the law. A governing body may not withhold, deny, or impose conditions on any land use approval or other authority to act based solely on compliance with a growth policy […]." It is, though, beneficial to examine the proposed subdivision in consideration of the adopted growth policy.

Carbon County adopted the 2020 Growth Policy in March of 2020. Chapter 6 contains goals and objectives for the implementation of the Growth Policy. The following goals and objectives may be relevant to the proposed subdivision:

- Objective 1.3: Assist farmers and ranchers who wish to continue using their lands for agricultural production.
  - 1.3.C. Continue to fund and support an active County weed control program which includes both education and regulation. Streamline the process to treat noxious weeds and recover costs when landowners do not treat their weeds. Continue to require weed inspections and bonding as necessary for any land use change and new development with fees to cover staff time for inspections.
  - 1.3.E. Balance individual property rights with the rights of other property owners and community interests for the public health, safety and welfare of all citizens.
- Objective 1.4: Encourage development in areas that are not in agricultural production
  - 1.4.A. As authorized by the state legislature in 2003, in 76-3-509 MCA, formulate and adopt regulations to encourage cluster development for those developments that meet the definitions.
- Objective 1.6: Encourage the voluntary preservation of open space and wildlife habitat in the county
  - 1.6.C. Encourage developers to mitigate impacts to wildlife, recreation areas, and agriculture, including, but not limited to, closing water storage tanks and pits, cleaning spills, and keeping major migration corridors as open as possible.
  - 1.6.D. When considering changes in land use, encourage consultation with wildlife agencies for potential impacts.
- Objective 1.7: Direct growth to existing communities, incorporated towns and cities, or platted unincorporated places.

- 1.7.A. Explore the potential for future land use mapping in areas immediately adjacent to existing communities

e. Summary of Public Comments:

The Carbon County Planning Board considered this subdivision at their meeting of May 21, 2024, at which public comments were received and considered. The following is a summary of public comments and the Board's discussion.

CJ Spencer, landowner, noted that irrigation rights would not be split and would stay with lot 2.

Doris Dragon asked about covenants and the potential for future subdivision in the area. She noted that the prior owner of the property never intended the property to be subdivided.

CJ Spencer discussed the history of the property and noted that family transfer had been denied on the property last year, necessitating subdivision review. He noted that they are proposing covenants, and that there were no covenants on the property when they bought it. The subdivision will enable them to finance construction of a home.

Macy Spencer indicated the intent is to sell a lot to her sister.

Kate Stout, surveyor, noted that the previous owner had divided the property using exemptions from subdivision review.

Doris Dragon noted that two lots might be OK, but that she didn't want to see a lot of subdivided lots.

Staff discussed the background regarding the family transfer submittal and reasons for denial.

The Board made no changes to the findings or conditions as a result of the public comments and discussion.

f. Planning Board Recommendation:

The Carbon County Planning Board considered this subdivision at its meeting of May 21, 2024, and unanimously recommended approval of the Hellroaring Ranch Subdivision pursuant to the following conditions (Section references are to the Carbon County Subdivision Regulations unless otherwise noted):

1. Easements shall be provided and shown on the final plat for the Clear Creek Ditch to allow for the use, maintenance, and inspection of the facilities. (Section V-A-18; Effect on Agricultural Water Users Facilities)
2. The following statement shall appear on the final plat: "Nothing herein nor any covenant shall diminish the unobstructed use and maintenance of the existing water delivery ditches, pipelines, and facilities in the subdivision that are necessary to convey water through the subdivision to land adjacent or to beyond the subdivision in quantities and in a manner that are consistent with historic and legal rights." (Section V-A-18; Effect on Agricultural Water User Facilities)

3. The Fire Prevention and Control Plan shall be filed with the final plat. (Section V-A-21; Effect of Local Services; Effect on Public Health and Safety)
4. Prior to final plat, the shared road and cul-de-sac as shown on the plat shall be constructed to the standards required in the Subdivision Regulations and the construction shall be certified by a registered professional engineer. (Section V-A-10.c. and Table 1)
5. Filing of the final plat shall be subject to the review and approval by the Montana Department of Environmental Quality and Carbon County Sanitarian, as appropriate, for water, wastewater, solid waste, and stormwater drainage provisions. (Sections IV-B-8.b.ii and V-A-11, 12,13, and 14; Effect on the Natural Environment; Effect on Public Health and Safety)
6. The final plat shall show the location of all existing and required utility easements. (Section V-A-15.a; Effect on Local Services)
7. The final plat must include the following statement: "The undersigned hereby grants unto each and every person, firm or corporation, whether public or private, providing or offering to provide telephone, telegraph, electric, power, gas, cable television, water or sewer service to the public, the right to the joint use of an easement for the construction, maintenance, repair and removal of the lines and other facilities, in, over, under and across each area designated on this plat as "Utility Easement" to have and hold forever." (Section V-A-15.h; Effect on Local Services)
8. Prior to filing the final plat, evidence should be submitted showing required mitigation through the Montana Sage Grouse Habitat Conservation Program has been completed. (Section V-A-5; Effect on Wildlife Habitat)
9. A notation shall be provided on the final plat that legal and physical access is provided per 76-3-608(3)(d), MCA. (Section IV-B-11.g.v; Compliance with the Montana Subdivision and Platting Act)
10. Prior to filing the final plat, the plat shall be submitted to the County Examining Land Surveyor and any comments sufficiently addressed. (Section IV-C-3.b.vi; Compliance with Survey Requirements)
11. The final plat shall be in substantial compliance with the plans and documents submitted as part of the preliminary plat application. (Section IV-C-5.b; Compliance with the Subdivision Regulations)
12. The final plat shall be submitted within two years of the date of preliminary plat approval, or an extension(s) to the approval period obtained. (Section IV-B-11; Compliance with the Subdivision Regulations)
13. Any new private covenants should meet the requirements of Section V-A-23 and be filed with the final plat. (Compliance with the Subdivision Regulations.
14. The final plat shall be prepared and reviewed in accordance with Section IV-C of the Carbon County Subdivision Regulations. (Compliance with the Subdivision Regulations)

CARBON COUNTY
Planning Office
P.O. Box 466, Red Lodge, MT 59068
Main: (406) 446-1694
Fax: (406) 446-2640

GROUP 2 DEVELOPMENT PERMIT APPEAL– STAFF REPORT

Date: June 6, 2024

To: Carbon County Board of County Commissioners

From: Forrest J. Mandeville, AICP – Contract Planner

RE: Carbon County Road and Bridge District #3 Group 2 Development Permit Appeal

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Possible Motion: *Having reviewed and considered the staff report, public comment, Planning Board decision, and all of the information presented, I hereby move to* ***uphold/overturn*** *the Planning Board's approval of the Group 2 Development Permit from the Carbon County Road and Bridge District #3 for the construction of a County Road Department storage building.*

Project/Application Summary:

Commissioner Bill Bullock, on behalf of Carbon County Road and Bridge, has submitted an application to construct a steel and concrete building to store salt and sand for road maintenance on County land on Rodeo Road, west of Red Lodge, south of the fairgrounds. The proposed development is located on Rodeo Road, about ¼ mile north of the intersection with S Airport Road. The property is legally described as Lots 1-12, Block 69 of the Red Lodge Hymer Addition, Section 34, T 7S, R 20E, Carbon County, MT.

Under the Development Regulations, the Planning Board, in its role as the Zoning Commission, is tasked with considering the criteria for approval, and approving or conditionally approving an application for a Group 2 Development Permit. The Zoning Commission may deny an application if the approval criteria cannot be met, or it is determined that the development will create a significant adverse impact on surrounding properties or current uses. The Planning Board considered this application their April 16 meeting and tabled the discussion until their May 21 meeting, at which the application was again considered and ultimately approved subject to conditions.

The Development Regulations allow an appeal of a decision of the Planning Board to the County Commissioners within 10 days of the decision. On May 30 Elizabeth Testa submitted such an appeal in writing to Planning Staff.

Required Commission Action:

Under the Development Regulations, Section V-A.5.b., the Commission may consider:

i. Whether the decision is consistent with the meaning and intent of these Regulations and the Carbon County Growth Policy;

ii. Whether strict compliance with these Regulations or conditions of approval would create an unnecessary hardship or unreasonable situation on the particular property;

iii. Evidence of any adverse effects on other property or the general health, safety and welfare of the County.

A copy of the staff report and discussion of the Planning Board is attached, as is the application, site plan, approval documents as approved by the Planning Board, and Ms. Testa's appeal documents.

CARBON COUNTY
Planning Office
P.O. Box 466, Red Lodge, MT 59068
Main: (406) 446-1694
Fax: (406) 446-2640

GROUP 2 DEVELOPMENT PERMIT – STAFF REPORT

Date: April 5, 2024; Updated May 9, 2024

To: Carbon County Planning Board/Zoning Commission Members

From: Forrest J. Mandeville, AICP – Contract Planner

RE: Carbon County Road and Bridge District #3

Recommendation: **Approval**

Recommended Motion: *Having reviewed and considered the staff report, public comment, and all of the information presented, I hereby move to approve the Group 2 Development Permit from the Carbon County Road and Bridge District #3 for the construction of a County Road Department storage building.*

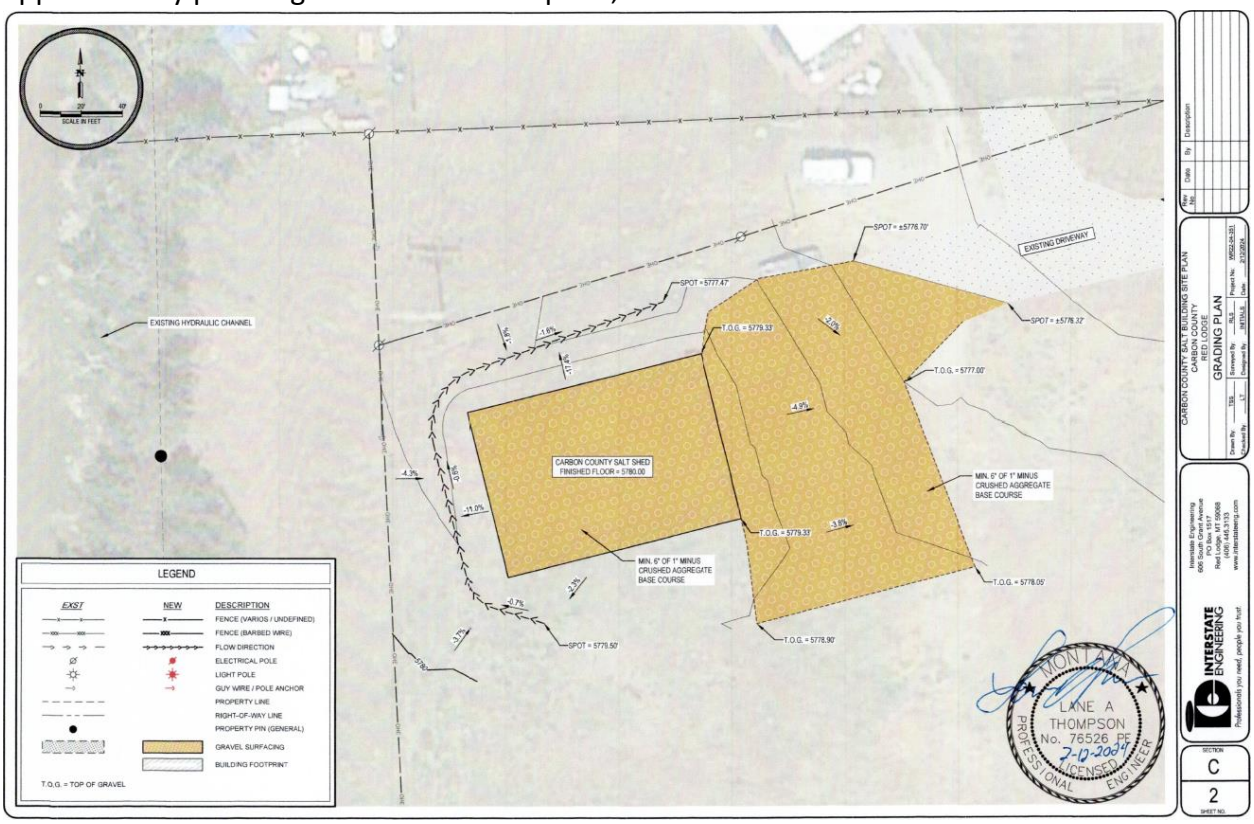
Project/Application Summary:

Commissioner Bill Bullock, on behalf of Carbon County Road and Bridge, has submitted an application to construct a steel and concrete building to store salt and sand for road maintenance on County land on Rodeo Road, west of Red Lodge, south of the fairgrounds. The proposed development is located on Rodeo Road, about ¼ mile north of the intersection with S Airport Road. The property is legally described as Lots 1-12, Block 69 of the Red Lodge Hymer Addition, Section 34, T 7S, R 20E, Carbon County, MT.

Required Board Action:

Under the Development Regulations, the Planning Board, in its role as the Zoning Commission, is tasked with considering the criteria for approval, and approving or conditionally approving an application for a Group 2 Development Permit. The Zoning Commission may deny an application if the approval criteria cannot be met, or it is determined that the development will create a significant adverse impact on surrounding properties or current uses.

The Zoning Commission shall approve, deny, or conditionally approve a Group 2 Development Permit within 60 days of receiving a complete application. The application was received on April 2, 2024, so a decision must be made by June 1, 2024. Surrounding property owners were notified of the pending application by planning staff via mail on April 5, 2024.



Site Plan

<u>Development Regulations – Compliance Review/Findings Summary:</u> (Section references are to the Carbon County Development Regulations unless otherwise noted)

Pursuant to Section V-B.3.c, the Zoning Commission shall consider the following approval criteria for any Group 2 Development Permit:

1. Water Supply: The development shall provide adequate water supply and adequate means of waste water disposal, and adequate disposal of solid and hazardous waste. **There is no on-site water, wastewater, or solid or hazardous waste as part of this application.**
2. Floodplain: The development shall conform to the Carbon County Floodplain regulations. There shall be no development in the floodway. **There is no floodplain in the development area.**
3. Site Design: The development shall be properly graded and appropriate culverts, ditches, settling ponds, and other necessary facilities shall be provided to remove surface run-off in a manner that will not adversely affect adjacent streams, lakes, reservoirs, or public roads. **The site plan indicates grading will occur to ensure proper drainage. Access will be**

from an existing approach from Rodeo Road which accesses other County buildings. Adherence to the submitted site plan is recommended as a condition of approval.

4. Setbacks: Proposed buildings or structures may not be erected on property lines or within right-of-ways or easements. All buildings and structures shall be set back 10 feet from any side lot line, 20 feet from a rear lot line and 30 feet from the front lot line or street right of way or easement. **According to the application, the building will be at least 50 feet from the nearest property line.**

5. Access: legal and physical access shall be provided to the tract of land where the development is proposed. Any new proposed access on a County Road will require an approach permit. Approaches on state highways shall be approved by the Montana Department of Transportation. **The site is accessed from Rodeo Road via an existing approach. The Rodeo Road right of way is mostly owned by the City of Red Lodge, with County access on the west side. The applicant has also applied for a rural address, approval of which is pending at time of writing.**

Project Location and Vicinity

6. Agricultural Interference: Development shall not interfere with agricultural operations through the contamination of livestock or irrigation water supplies or obstruct, impair or impede irrigation canals, headgates, ditches, culverts or other irrigation facilities. **The development is near residential uses, the fairgrounds, and an airport. There is a ditch located**

to the west of the property. The site has been used for County road maintenance for several decades and it is unlikely that the addition of a storage building will result in adverse impacts on agriculture. Discussion at the April 16 County Planning Board meeting indicated that County maintenance use was a more recent development.

7. Current Uses: Development shall not create significant unmitigated adverse impacts on surrounding properties or current uses. **Since the property has been used for Road and Bridge Department Storage historically, and the development will add a storage building, it is unlikely new significant adverse impacts will be created. Discussion at the April 16 County Planning Board meeting indicated that County maintenance use was a more recent development.**

Planning Board April Meeting Summary:

The Planning Board discussed this application at their meeting of April 16. Discussion centered around possible interference with fair parking. It was also noted that there are outlets for campers in the area and the Board was unsure if the proposed use would interfere with the outlets.
Public comments were received from Elizabeth Testa and Mark Schubert which noted the equipment storage is a relatively new use on the site and expressed concerns about weeds and increased semi traffic on area roads.
The Board was concerned that the site plan was not clear enough to make an informed decision on possible area impacts and thought there might be alternative locations. The Board voted to table discussion to the May 21 meeting in order to do more fact finding.

Staff discussed the concerns of the Board with the applicant. Commissioner Bullock indicated that this location is the only option given the current County land assets in the area and noted the importance of having this facility in this location in order to continue to provide expected levels of road maintenance in the area.
Staff was able to confirm the new storage building will be located outside of the fenced area, near the end of the existing drive, to the west of the west gate to the fairgrounds.
Additional public comments were received after the April meeting from Bruce Schelske who indicated no objection to the proposal but noted difficulty with interpreting the site plan.

Current Equipment on Site

Marked-up Site Plan Showing Location of Shed Relative to Other Area Development

Planning Staff Recommendation:

Planning Staff recommends approval of the Carbon County Road and Bridge District #3 Group 2 Development Permit, pursuant to the following conditions (Section references are to the Carbon County Development Regulations):

1. Obtain all other necessary permits as required by other state or government agencies and adhere to any conditions required.
2. Any deviation from the site plan must be made known to the Planning Office to determine whether or not the deviation is in compliance with the approved development permit or if a new permit is needed.
3. If approved activity on site is inactive for two years this permit is deemed abandoned and a new permit must be obtained prior to activity resuming.
4. Any intensification of use shall be made known to the Carbon County Planning Department to determine whether an amended permit is required.
5. Ingress and egress shall be limited to Rodeo Road, as shown on the site plan.
6. A rural address shall be obtained for the site.

Development Permit Package

Carbon County Montana

Submitted On:
Apr 2, 2024, 12:50PM EDT

What permits are you applying for today?	Group 2 Development Address
*****PROPERTY OWNER*****	**First Name:** Carbon County **Last Name:** Carbon County
Business Name (If Applicable)	Carbon County Road and Bridge District #3
Property Owner Mailing Address	**Street Address:** 91 Rodeo Road Red Lodge **City:** Red Lodge **State:** MT **Zip:** 59068
Property Owner Email	bbullock@co.carbon.mt.us
Property Owner Primary Phone Number	406-425-4517
Type of Primary Phone	Cellular
Cellular provider for Primary Phone	AT&T
Property Owner Secondary Phone Number	406-446-1595
Type of Secondary Phone	Land Line
Preferred Contact Method	Phone
How would you like to receive your permits?	Physical copy (mail)
Do you own, rent, or lease the property?	Own
Are you applying on behalf of a client?	No
Assessment Code from Montana Cadastral	000E166000
Certificate of Survey or Plat Number (INCLUDE LT OR TR, if applicable) from Montana Cadastral website	Red Lodge Hymer Addn, s34, t07s, r 20e, RL Hymer Addn Lots 1-12 BLK 69
Legal Description of property from Montana Cadastral website (Ex: S27, T07S, R20E)	34 07s 20e
Has a physical address been	

assigned to the property?	In progress
Access to Property	Existing
Current Property Use	vacant storage ground
Property Acreage	3.4
Proposed Use / Development to Property	Industrial business
Check Type of Development	General Commercial or Multi-Family Use (including recreational use)
Describe the type of proposed building construction or planned development.	a steel and concrete building to store salt sand for road maintenance.
What type of business activities will be on the property?	county road department storage.
Is there surface water on the property?	No
Is the property located in a floodplain?	No
Is the proposed development located in Sage Grouse habitat?	No
Are there covenants and/or restrictions on the property that may prohibit the proposed development?	No
Are there any road, ditch, utility or other easements that exist on the property?	No
Describe existing and proposed water, sewer and wastewater facilities:	There will be no water available, or needed wastewater on the property.
Describe existing access to the property and how traffic related to the commercial and industrial activity will be directed through the site.	property is accessed off of Rodeo Road, by an existing approach, and navigated by an existing roadway
For construction of new buildings or facilities related to this permit, please state how far they will be set back from each property line:	Building is in excess of 50' from nearest adjoining property owners.
Will the proposed activity interfere with agricultural operations by contaminating	No

water sources or interfering with irrigation facilities?	
Are State or Federal Permits needed to conduct this activity on the proposed property?	No, I have not yet applied for additional permits
What are the current uses adjacent to the proposed property?	1 residential property over 100' to the west, across an irrigation ditch. to the north, other County Land, to the east, vacant airport land, and to the south, City park land of the City of Red Lodge.
Neighboring Property Owner 1	**First Name:** Gary & Emily **Last Name:** Russell
Neighboring Property Owner 1 Full Address	**Street Address:** P.O. Box 2045 Red Lodge **City:** Red Lodge **State:** MT **Zip:** 59068
Neighboring Property Owner 2	**First Name:** City of Red Lodge
Neighboring Property Owner 2 Full Address	**Street Address:** P.O. Box 9 **City:** Red Lodge **State:** MT **Zip:** 59068
More Owners?	No
Group 2 Property Site Plan submission	Email / Mail my site plan at a later date
Please describe the location of your approach or provide GPS coordinates.	used to be 92 rodeo road...should that continue or, need a new address...
Please provide any additional comments concerning this address request.	none
Does the occupant want their phone number(s) and email registered with the County's Emergency Notification System (i.e., CodeRED). This will only be used for emergency situations in the County and not shared.	No, do not include my contact information in CodeRED. I do not wish to recevie emergency notifications
Amount to be Paid (convenience fees are in addition to this total)	190
Signature Data	First Name: Bill Last Name: Bullock Email Address: bbullock@co.carbon.mt.us

Signed at: April 2, 2024 12:50pm America/New_York

Receipt	DPP-0000689

COUNTY OF CARBON ~ STATE OF MONTANA
PLANNING OFFICE
PO Box 466
Red Lodge, MT 59068
Phone: 406.446.1694
https://www.co.carbon.mt.us

Forrest Mandeville Consulting
Contractor

May 22, 2024

Carbon County
Commissioner Bill Bullock
PO Box 887
Red Lodge, MT 59068

Re: Group 2-4-2024 Commercial Development Permit

Dear Commissioner Bullock:

Your application for a Group 2 Development Permit for property legally described as Lots 1-12, Block 69 of the Red Lodge Hymer Addition, Section 34, T 7 S, R 20 E, Carbon County, MT was reviewed by the Planning Board and approved at their meeting of May 21, 2024. You are conditionally permitted (see below) for the development of a storage building for salt and sand for road maintenance, as outlined in your application and shown on your site plan. Any and all other necessary permits as required by other state or government agencies must be obtained prior to operation. Any deviation or intensification from such plan should be made known to the planning department. **Please note that the Development Regulations do require a new permit if such use is intensified from the information provided in the initial permit.**

Conditions of Permit:

1. Obtain all other necessary permits as required by other state or government agencies and adhere to any conditions required.
2. Any deviation from the site plan must be made known to the Planning Office to determine whether or not the deviation is in compliance with the approved development permit or if a new permit is needed.
3. If approved activity on site is inactive for two years this permit is deemed abandoned and a new permit must be obtained prior to activity resuming.
4. Any intensification of use shall be made known to the Carbon County Planning Department to determine whether an amended permit is required.
5. Ingress and egress shall be limited to Rodeo Road, as shown on the site plan.
6. A rural address shall be obtained for the site.
7. Measures shall be put in place to restrict unauthorized access to the shed.

Any instance of noncompliance with these conditions may be grounds for revocation of this permit.

This decision is subject to appeal. Under the Development Regulations, Section V-A.5, this decision may be appealed to the Board of County Commissioners within 10 calendar days. Any appeal must be in writing.

If you have further questions, please feel free to contact me at 406-690-1933 or forrest@forrestmandevilleconsulting.com

Sincerely,

Forrest J. Mandeville, AICP
Contractor
Carbon County Planning Office

May 30, 2024

Board of Cabon County Commissioners
County Administration Building
17 West 11th Street
PO Box 887
Red Lodge, MT 59068

RE: Appeal of Planning Board's May 21, 2024 approval for Sand and Salt Storage Building for Road and Bridge District #3

Group 2 Development Permit – Lots 1-12, Block 69 of the Red Lodge Hymer Addition, Section 34, T 7S, R20E, Carbon County, MT

This proposal to construct a +/- 2,600 SF concrete and steel building to store sand and salt at this location will create a significant adverse impact on surrounding properties. Although it may be necessary to have sand and salt available in winter months to have county roads remain passable, as an adjacent property owner, there are serious environmental factors that must be addressed.

In a Risk Assessment by The Environmental Protection Agency (EPA), excessive road salt (sodium chloride) is identified globally as an environmental toxin, that is lethal to plants, fish, animals, and pets, and can result in pollution to groundwater and drinking water sources. (See Attachment 1)

This contamination can be further exacerbated by salts that leach into the ground, surface water and result in an increased rate of "metals mobilizing from soils and pipes, and can cause radioactive materials such as radium in soils to become more concentrated in groundwater and surface water. Excess salts can make water undrinkable, increase the cost of treating water, and harm freshwater fish and wildlife."

Having a concentrated amount of sand and salt in a contained area over time can significantly impact these issues. There are documented case studies of residential wells (in multiple states) in the vicinity of sand and salt storage facilities that have been contaminated and rendered undrinkable.

A seasonal agricultural ditch is also present on the west boundary of the property. Applicant indicates development site is within 50 feet of the property line. Without proper containment measures, run off waters to the irrigation ditch could cause potentially harmful algal bloom and lowering oxygen levels, resulting in degradation of water quality.

Appellant applauds the Commissioner's efforts to protect their assets by providing a covered storage facility for their road sand and salt. However, the site plan for this facility falls short of protecting the environment, groundwater, and well water surrounding the development area.

The following General Purpose Statement is from the Carbon County Development Regulations – adopted unanimously by the Carbon County Planning Board on September 12, 2023. Highlighted sections indicate provisions that are in direct conflict with the proposed development:

Carbon County Development Regulations

II-A. General Purposes

The goal of these Regulations is to provide for the planning of any proposed land use changes in Carbon County to address public health and safety, water and air quality, impacts to existing infrastructure, and the economic welfare of Carbon County and its residents. Carbon County will encourage economic development, preserve agricultural resources, support tourism, recreation and use of its natural resources for multiple uses.

Furthermore, these Regulations are to:

1. Implement the land use goals, objectives and policies set forth in the Carbon County Growth Policy, purposes further specified in these Regulations, and to give strong consideration for the rights of those who own the property in question. Balancing the interest of the public and private property owners is recognized.

2. Preserve open space and manage development by encouraging and channeling the more intensive developments to within, or close to, existing cities and communities of Carbon County; ensuring the continuance of natural open space, and fish and wildlife habitat; and not diminishing quality or quantity of groundwater in the greater area of the development.

3. Minimize, where possible, impacts of new developments upon existing and new government services and infrastructure such as roads, wildfire protection, health and safety, and emergency services.

4. Limit development to those areas best suited for them physically, economically, socially and environmentally.

Pollution and contamination by road sand and salt is a “hot-topic” with National, State and Local Municipalities, including the Montana Department of Transportation and the Western Transportation Institute at Montana State University. Government oversight groups, environmental organizations and even winter road maintenance industry groups have researched, studied and published extensive documentation to support best management practices and the negative impacts of improper salt application and storage.

One such organization is The Salt Institute: The Salt Institute is a North American based non-profit trade association dedicated to advancing the many benefits of salt, particularly to ensure winter roadway safety, quality water and healthy nutrition. Their publication the SALT HANDBOOK outlines best method practices for sand and salt road application, safety and storage procedures. (See Attachment 2)

According to the Salt Handbook "Properly stored salt will: ❄ Prevent formation of lumpy salt that is difficult to handle with loaders and to move through spreaders, ❄ Eliminate the possibility of contaminating streams, wells or groundwater with salt runoff, ❄ Eliminate the loss of salt by runoff and dissolving by precipitation."

Further, the Salt Handbook indicates "The most critical step in providing good storage is selecting the storage site." Using the acronym S-A-L-T-E-D, they suggest a location that is:

"S – Safe for workers and the environment
A – Accessible to permit easy access to trucks and equipment
L – Legally compliant with local zoning requirements, as well as local, state and federal regulations governing environmental discharge concerns.
T - Tidy - storage facilities that blend with local surroundings, when possible, especially in residential areas. They should be well kept, with no junk or scrap material piled around that would give an impression of sloppiness or waste and allow the possibility of getting foreign objects in spreaders. Salt spilled during delivery or loading must be cleaned up and returned to the storage structure as soon as possible to avoid environmental contamination.
E – Economics: covered storage is a good method to protect materials
D – Drainage: locate all storage structures to provide good drainage away from the stockpile. Pads should have a slope of 1/4 inch per foot away from the center. Pads, aprons and other adjacent work areas should be capable of supporting the stockpile and equipment. Ensure that your storage area does not accidentally drain into a freshwater reservoir, well or groundwater supply. If needed, curbs can be installed around the storage area to direct drainage or run-off. All drainage should be properly contained. The brine collected can be reapplied to the stockpile during dry seasons or applied to spreader loads prior to street applications."

Proper drainage is a critical factor in maintain dryness in sand and salt piles as well as preventing runoff into surrounding soils, groundwater, wells and aquifers. The current proposal for the Sand and Salt Storage Building inadequately address the drainage and containment of potentially hazardous materials. The Site Plan provided by Interstate Engineering (See Attachment 3) indicates the ground floor of the building will be "min. 6" of 1" Minus Crushed Aggregate Base Course".

The surrounding apron will also be "Min. 6" of 1" Minus Crushed Aggregate Base Course". There is no indication of impervious concrete floors, or any concrete apron or pad to prevent the seepage of salts into the soil. Elevations on the site plan indicate the flow direction of runoff, but no mention is made of containment ponds, curbs or waste water management. It appears any spilled sand or salt mixture can percolate directly into the ground.

The approximate +/-2,600 SF building will have a metal roof with an estimated square footage of +/-2,900 SF. Calculating the runoff potential of this building at 62 gallons of water/100 SF of roof = approximately +/- 1,800 gallons of water per 1" of rain/snow equivalent episode. That is enough water to fill more than a 12 Ft diameter above ground pool 30" deep with water. (See Attachment 4)

The Applicant should note there are two wells located on County Fairground property in proximity to the proposed development site (See Attachment 5) – one is 226 feet from the south Fairgrounds fence, and another at 381 feet from the fence. Many Municipalities require a Sand and Salt Storage facility be located in excess of 300 feet from wells to mitigate potential contamination.

The Appellant has expressed concerns for the environmental impact of the proposed Sand and Salt Storage Building and the potential for groundwater, agricultural water and well water contamination and environmental degradation of soil, plants and wildlife in the areas surrounding the development that are erroneous and contrary to the County's own Development Regulations and seeks to following relief in this appeal:

1. Applicant should follow the guidelines of the Carbon County Development Regulations and balance the interest of public and private property owners to ensure safe and healthy growth of the County and its residents.
2. Applicant must obtain all necessary permits as required by other state or government agencies and adhere to any conditions required.
3. Revisit the proposal to include bituminous or impervious concrete pads inside the Sand and Salt Storage Facility - salt storage should always be on an impervious pad.
4. The pad/apron site should be located away from wells, reservoirs and groundwater supplies. If pads/apron are constructed of concrete, they must be high quality, air-entrained and treated with sealants, asphaltic-type coatings, or other treatments to keep salt out and prevent spalling. Total thickness of surface and base for asphalt pads will vary, depending upon the condition of the subgrade and weight to be supported. Any asphalt surfacing material used by highway departments is satisfactory. Slope pads to let surface water drain away. Minimum slope is one to two percent. For good drainage, install ditches, pipes and tile where necessary. In some cases, it may be necessary to install pipes, tiles or asphalt berms to channel water to a collection point, preferably a specially designed sump area.
5. Plans should be developed and followed to manage any salt contaminated run-off from the storage site, in keeping with an appropriate Storm Water Pollution Prevention Plan (SWPPP) developed for the site. Salt water runoff and containment should be in a lined catchment pond to prevent contamination of soils and water.
6. Winter snow removal from the site must be planned to avoid potential run-off or pooling into areas not contained in catchment pond.
7. Plows and sand trucks cannot be cleaned in areas that could create contaminated run-off into areas not contained by catchment pond.
8. County Road Maintenance Employee – certified training to ensure personnel working with hazardous materials are aware of environmental issues associated with salts, to properly and adequately apply and maintain salts in a safe and effective manner.
9. The County agrees to provide no cost, independent well, water or soil testing to adjacent property or ditch owners, at the adjacent property owner's discretion and maintain records to monitor Sodium Chloride and other contaminants within acceptable DEQ and EPA levels.
10. Plant and maintain a "Living Fence" of conifer and deciduous trees along the property line to minimize noise and dust.

11. Alternately, the Applicant should consider additional sites for this development project should necessary environmental protections not be applied and maintained at the proposed location.
12. Construction of the Sand and Salt Building should not begin until concerns addressed in this appeal are taken under consideration and resolved to satisfaction of the Appellant(s).

Carbon County Development Regulation require the following appeal procedure:

5. Appeals

a. A person aggrieved by a decision of the Planning Director may appeal, in writing, within 10 calendar days, that decision to the Board of County Commissioners.

b. The Board of County Commissioners may consider:

i. Whether the decision is consistent with the meaning and intent of these Regulations and the Carbon County Growth Policy;
ii. Whether strict compliance with these Regulations or conditions of approval would create an unnecessary hardship or unreasonable situation on the particular property;
iii. Evidence of any adverse effects on other property or the general health, safety and welfare of the County.

However, in this instance the Application for a Group 2 Development Permit was submitted by County Commissioners, for a project on behalf of the Carbon County Road and Bridge District #3 on a property owned by the County.

This appeal to the Board of Carbon County Commissioners is a conflict of interest for the Commissioners to review this appeal without bias. Appellant suggests this appeal returns to the Planning Board and the County Attorney for review.

Thank you for your consideration of these matters,

Elizabeth Testa
Meadow Circle Lot #21
PO Box 2062
Red Lodge, MT 59068

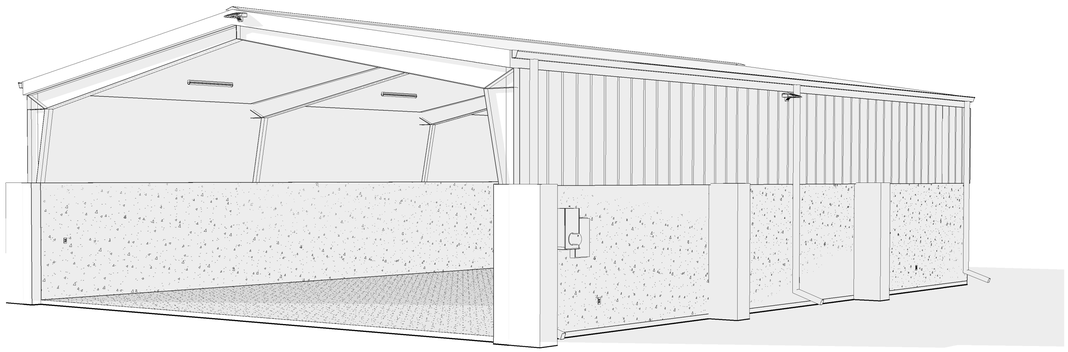
CARBON COUNTY MONTANA
NEW SALT SHED

RED LODGE, MT

CONSTRUCTION DOCUMENTS

FEBRUARY 12, 2024

PROJECT RENDERING



PROJECT TEAM

OWNER

CARBON COUNTY BOARD OF COMMISSIONERS
17 WEST 11TH ST.
RED LODGE, MT 59068

ARCHITECT

ARETE DESIGN GROUP, LLC
228 EAST BRUNDAGE ST, SUITE 100
SHERIDAN, WY 82801
307-672-8270

CONTACT: LEVI VAN BUGGENUM
LEVIV@ARETEDESIGN.GROUP

CIVIL ENGINEER

INTERSTATE ENGINEERING
606 S. GRANT AVENUE
RED LODGE, MT 59068
406-445-3133

CONTACT: LANE THOMPSON
LANE.THOMPSON@INTERSTATEENG.COM

STRUCTURAL ENGINEER

HENDRICKSON FREESE PC
645 GRAND AVENUE, SUITE H
BILLINGS, MT 59102
307-752-9083

CONTACT: ALFRED HENDRICKSON
ALFRED@HENDRICKSONFREESE.COM

ELECTRICAL ENGINEER

MORRISON-MAIERLE
315 N 25TH ST, SUITE 102
BILLINGS, MT 59101
406-656-6000

CONTACT: JEFF KRAFT
JKRAFT@M-M.NET

DRAWING INDEX

PROJECT INFORMATION

OWNER:	CARBON COUNTY BOARD OF COMMISSIONERS
PROJECT SCOPE:	NEW SHED FOR STORAGE OF SALT/SAND MIXTURE FOR CARBON COUNTY, MT
CONSTRUCTION TYPE:	VB
OCCUPANCY:	S-2
SPRINKLED:	NO
NUMBER OF STORIES:	1
TOTAL BUILDING SF:	2,520 SF

ARCHITECTURAL NOTES

1. UNLESS OTHERWISE INDICATED, PLAN DIMENSIONS ARE TO GRIDLINES ALIGNING TO FACE OF COLUMNS, FACE OF NOMINAL SURFACE OF MASONRY, FACE OF STUDS AND FACE OF CONCRETE WALLS.
2. FINISH FLOOR ELEVATION (FFE) REFERS TO TOP OF CONCRETE SLABS. FINISH FLOORING IS INSTALLED ABOVE THE FLOOR LINE. FOR DEPRESSED FLOORS AND CURBS, SEE STRUCTURAL DRAWINGS.
3. LINE OF EXISTING GRADES, AS SHOWN ON THE BUILDING ELEVATIONS AND SECTIONS ARE APPROXIMATE.
4. DO NOT SCALE DRAWINGS.

ARETE DESIGN GROUP

228 EAST BRUNDAGE STREET, SUITE 100
SHERIDAN, WYOMING 82801

INFO@ARETEDESIGN.GROUP
PHONE: 307.672.8270

DESIGN AND CONSTRUCTION CRITERIA:

1. MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, 7TH EDITION, APRIL 2021.
2. MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY, CIRCULAR 1, AUGUST 2022.

GENERAL NOTES:

1. THE GENERAL CONSTRUCTION NOTES APPLY TO THE UTILITY PROJECT IN ITS ENTIRETY, UNLESS NOTED OTHERWISE, CONSTRUCTION NOTES THAT HAVE BEEN INCLUDED PAGE BY PAGE SHALL BE CONSIDERED ADDITIONAL NOTES APPLICABLE TO THAT SECTION OF WORK.
2. UNLESS NOTED OTHERWISE CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE PROJECT DOCUMENTS. PLAN SHEET DETAILS SHALL TAKE PRECEDENCE OVER THE PROJECT SPECIFICATIONS.
3. ITEMS NOT INCLUDED AS A PAY ITEM ON THE BID FORM SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION.

EXISTING UTILITIES:

1. UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVEL" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEER'S DOCUMENT ASCE 38, "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA" RELIANCE UPON THIS DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION. IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTANDS THE SCOPE OF THE WORK BETWEEN THE PROJECT OWNER AND THEIR ENGINEER REGARDING THE SCOPE AND LIMITS OF THE UTILITY INVESTIGATIONS LEADING TO THESE UTILITY DEPICTIONS.
    a. UTILITY QUALITY LEVEL: A PROFESSIONAL OPINION OF THE QUALITY AND RELIABILITY OF UTILITY INFORMATION, SUCH RELIABILITY IS DETERMINED BY THE MEANS AND METHODS OF THE PROFESSIONAL. EACH OF THE FOUR EXISTING UTILITY DATA QUALITY LEVELS ARE ESTABLISHED BY DIFFERENT METHODS OF DATA COLLECTION AND INTERPRETATION.
    b. UTILITY QUALITY LEVEL "A": PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUB-SURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15 MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.
    c. UTILITY QUALITY LEVEL "B": INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEO-PHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL "B" DATA SHOULD BE REPRODUCIBLE BY SURFACE GEO-PHYSICS AT ANY POINT ON THE DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.
    d. UTILITY QUALITY LEVEL "C": INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL "D" INFORMATION.
    e. UTILITY QUALITY LEVEL "D": INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
2. THE UTILITIES SHOWN ON THESE PLANS ARE LOCATED APPROXIMATELY, HAVING AN ACHIEVED QUALITY LEVEL OF "C", THROUGH A COMBINATION OF FIELD SURVEY AND OWNER MAINTAINED MAPS. THE USE OF UTILITY LOCATIONS AND DEPTHS SHOWN HEREIN ARE FOR REFERENCE ONLY AND NOT FOR CONSTRUCTION PURPOSES. THE EXACT SIZE, LOCATION, MATERIAL AND DEPTH OF ALL UTILITIES SHALL BE DETERMINED ONSITE BEFORE CONSTRUCTION COMMENCES. ANY PARTY FAILING TO LOCATE UTILITIES RELATIVE TO THE CONSTRUCTION AREA AGREES TO BE FULLY RESPONSIBLE.
3. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES PRIOR TO EXCAVATION WORK. THE CONTRACTOR SHALL CALL FOR UTILITY LOCATES PRIOR TO BEGINNING SAID WORK AND BE RESPONSIBLE FOR PROTECTING ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY RELOCATION WITH THE AFFECTED UTILITY OWNER.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AND STRUCTURES (OVERHEAD, UNDERGROUND, OR SURFACE) REQUIRED FOR INSTALLATION OF THE WATER AND/OR SEWER LINE AND APPURTENANCES. ANY UTILITY MODIFICATIONS SHALL BE COORDINATED WITH THE OWNER OF EACH UTILITY BEFORE CONSTRUCTION COMMENCES, UNLESS NOTED AS BEING RELOCATED BY THE UTILITY OWNER. ALL COSTS ASSOCIATED WITH SAID WORK SHALL BE INCIDENTAL THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE AWARDED FOR SUCH.
5. CONTRACTOR SHALL FIELD VERIFY EXACT ELEVATIONS OF EXISTING STORM SEWER, SANITARY SEWER, POTABLE WATER, ELECTRIC, TELEPHONE, FIBER OPTIC, GAS, AND OTHER UTILITY CROSSINGS BEFORE PLACEMENT OF NEW WATER AND/OR SEWER PIPELINES.
6. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATION AND GRADES PRIOR TO BEGINNING WORK AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN DESIGN AND AS-CONSTRUCTED INFRASTRUCTURE IMPROVEMENTS.

PLAN SHEETS AND DRAWINGS:

1. THE EXISTING SITE COMPONENTS ARE SHOWN IN GRAY. WORK INCLUDED IN THIS PROJECT IS SHOWN AS A SOLID LINE TYPE AND DESIGNATED BY COLOR.
2. IMPROVEMENT OFF-SETS LISTED IN PLAN VIEW ARE "L" MEANING LEFT OFF-SET IN DIRECTION OF STATIONING AND "R" MEANING RIGHT OFF-SET IN DIRECTION OF STATIONING. OFF-SET IS IN RELATION TO LOCATION AT WATER/SEWER MAIN CENTERLINE FOR PLAN VIEW. OFF-SETS LISTED IN PROFILE VIEW REPRESENT DIRECTION OF SERVICES/HYDRANTS FROM WATER/SEWER MAIN CENTERLINE IN DIRECTION OF STATIONING.
3. IMPROVEMENTS LISTED WITH "H" REPRESENTS HORIZONTAL ALIGNMENT ADJUSTMENT, "V" REPRESENTS VERTICAL ALIGNMENT ADJUSTMENT.
4. DETAIL DRAWINGS NOT INCLUDED UNDER THIS COVER MAY BE REFERENCED FROM MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, 7TH EDITION, APRIL 2021.

SITE PROTECTION AND/OR USE:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL LAND, APPROVAL, AND/OR EASEMENTS NECESSARY FOR STAGING AND STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY PERMITS REQUIRED TO PERFORM THIS WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR, BUT NOT LIMITED TO, DEVELOPING AND IMPLEMENTING A SITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL SUBMIT THE PLAN TO THE OWNER/ENGINEER PRIOR TO FILING THE NOTICE OF INTENT WITH THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ) FOR THIS PROJECT, IF REQUIRED.
4. ALL SALVAGEABLE MATERIALS SHALL BECOME THE PROPERTY OF THE OWNER. EXCESS EXCAVATED MATERIAL INCLUDING PIPE, STUMPS, ROOTS, AND ANY OTHER ITEMS THE OWNER DOES NOT WISH TO SALVAGE SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY, INCIDENTAL TO THE CONTRACT WITH NO ADDITIONAL COMPENSATION AWARDED FOR SUCH.
5. THE CONTRACTOR WILL PROTECT ALL PAVEMENT, SURFACING, DRIVEWAYS, CURBS, WALKS, BUILDINGS, UTILITY POLES, GUY WIRES, MAILBOXES, PLANTERS, AND OTHER SURFACE STRUCTURES AFFECTED BY CONSTRUCTION ACTIVITIES IN CONNECTION WITH PERFORMANCE OF THE CONTRACT TOGETHER WITH GRASS, SHRUBS, LAWN ORNAMENTS, ETC., OF YARDS CROSSED OR ADJACENT TO THE WORK FROM DAMAGE AND/OR DISTURBANCE. IF REMOVED OR OTHERWISE DAMAGED, THE CONTRACTOR SHALL RESTORE ALL SURFACE STRUCTURES TO THE ORIGINAL CONDITION OR BETTER AS DETERMINED BY THE OWNER/ENGINEER. ALL REPLACEMENT OF SUCH SURFACING AND SURFACE STRUCTURES SHALL BE MADE WITH NEW MATERIALS CONFORMING TO THE SPECIFICATIONS OR AS APPROVED BY THE OWNER/ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO STREETS, ROADS, HIGHWAYS, DITCHES, SHOULDERS, EMBANKMENTS, CULVERTS, BRIDGES, OR OTHER PUBLIC OR PRIVATE PROPERTY OR FACILITY THAT MAY BE DAMAGED BY MOVING, HAULING, OR OTHERWISE TRANSPORTING EQUIPMENT, MATERIALS TO OR FROM THE WORK. THE CONTRACTOR SHALL MAKE, WITHOUT DELAY, SATISFACTORY AND ACCEPTABLE ARRANGEMENTS WITH THE OWNER OF THE AGENCY HAVING JURISDICTION OVER THE DAMAGED PROPERTY CONCERNING REPAIR OR REPLACEMENT OR PAYMENT OF COSTS INCURRED IN CONNECTION WITH SAID DAMAGE.
7. THE EXISTING LANDSCAPE AND IRRIGATION SYSTEMS ARE NOT SHOWN BUT SHALL BE PROTECTED BY THE CONTRACTOR. ANY DAMAGED COMPONENTS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
8. CONTRACTORS SHALL MAINTAIN ACCESS FOR ALL PROPERTY OWNER(S) AND BUSINESSES SHALL COORDINATE DETOURS AND TEMPORARY CLOSURES WITH AFFECTED PROPERTY OWNER(S).
9. CONSTRUCTION ACTIVITIES REQUIRING ROAD CLOSURES SHALL BE RELAYED TO THE LOCAL DISPATCH OFFICE, AS WELL AS THE SCHOOL, BY THE CONTRACTOR TO ENSURE EMERGENCY SERVICES AND BUS ROUTES ARE NOTIFIED OF ALTERNATE ROUTES THROUGHOUT THE DURATION OF THE PROJECT.
10. ALL TRAFFIC CONTROL DEVICES AND PLANS ARE SUBJECT TO REVIEW BY THE OWNER/ENGINEER AND THE CITY OF RED LODGE AS APPLICABLE. ALL TRAFFIC CONTROL/DEVICES SHALL MEET THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
11. THE CONTRACTOR SHALL KEEP THE PROJECT SITE CLEAN AND ORDERLY DURING THE COURSE OF CONSTRUCTION, AS APPROVED BY THE OWNER/ENGINEER.
12. CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION, AS APPROVED BY THE OWNER/ENGINEER.
13. CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO PREVENT EXCESSIVE AMOUNTS OF OPEN TRENCH. OPEN TRENCH IS DEFINED AS AREAS ABSENT THE FOLLOWING CRITERIA: BACKFILL/COMPACTION PER SPECIFICATIONS, AND TEMPORARY SURFACE COURSE (IF REQUIRED) TO FINISH GRADE.
    a. THE MAXIMUM PERMISSIBLE DISTANCE OF OPEN TRENCH BETWEEN BACKFILLING/COMPACTION/TEMPORARY SURFACING OPERATIONS FROM THE END OF NEWLY INSTALLED PIPE SHALL NOT EXCEED 200 FEET IN EXISTING STREETS AND 400 FEET IN ALL OTHER AREAS, UNLESS OTHERWISE APPROVED BY OWNER/ENGINEER. SHORTER DISTANCES MAY BE REQUIRED BASED ON PROXIMITY TO SCHOOL BUILDINGS. REFER TO SECTION 31 23 33 TRENCHING AND BACKFILL FOR MORE INFORMATION.
    b. OPEN TRENCH OUTSIDE OF THESE LIMITS SHALL BE BACKFILLED, COMPACTED, AND HAVE TEMPORARY SURFACING INSTALLED TO FINISH GRADE PER SPECIFICATIONS AND BE OPEN AND ACCESSIBLE TO THE PUBLIC WITHIN TRAVELED ROADWAYS.

NEW UTILITY INSTALLATION:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL O.S.H.A. STANDARDS FOR TRENCH EXCAVATION.
2. UNLESS OTHERWISE NOTED, CONSTRUCTION LIMITS FOR WATER MAIN ARE WITHIN CITY RIGHTS OF WAY AND EXECUTED EASEMENTS.
3. ALL WATER MAINS, SERVICES, VALVES, HYDRANTS, AND FITTINGS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH DIVISION 33 - UTILITIES OF THE PROJECT SPECIFICATIONS.
4. CONTRACTOR SHALL COORDINATE THE OPERATION OF EXISTING VALVES AND HYDRANTS WITH THE CITY/TOWN PUBLIC WORKS DEPARTMENT.
5. ALL CURB STOP AND FIRE HYDRANT LOCATIONS SHALL BE VERIFIED WITH THE OWNER/ENGINEER PRIOR TO PLACEMENT.
6. THE EXACT TYPE AND SIZE OF EXISTING WATER MAIN/SERVICES ARE UNKNOWN. THE CONTRACTOR SHALL VERIFY THE SIZE, TYPE, AND LOCATION OF EXISTING MAINS/SERVICES AND ACQUIRE THE NECESSARY FITTINGS, VALVES, ADAPTORS, AND OTHER MATERIALS REQUIRED TO COMPLETE THE PROJECT. THIS INCLUDES HAVING A SMALL QUANTITY OF SERVICE LINE FITTINGS NOT NECESSARILY CALLED OUT ON THE PLANS. IF THE CONTRACTOR IS REQUIRED TO ACQUIRE/RETURN ANY FITTINGS, VALVES, ETC., THE COST OF SUPPLYING AND/OR RESTOCKING THE NECESSARY FITTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
7. ALL WATER SERVICE CONNECTIONS NOT COVERED UNDER THE PROJECT DOCUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE AS ADOPTED BY MONTANA IN ARM 24.301.301.
8. ALL SEWER SERVICE LATERAL INSTALLATION AND/OR REPAIRS NOT COVER UNDER THE PROJECT DOCUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UNIFORM PLUMBING CODE AS ADOPTED BY MONTANA IN ARM 24.302.301.
9. THE CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER WHEN ADDITIONAL WATER OR SEWER SERVICES ARE ENCOUNTERED THAT ARE NOT SHOWN ON THE PLANS, WHETHER THEY ARE ACTIVE OR INACTIVE.

SURFACE RESTORATION:

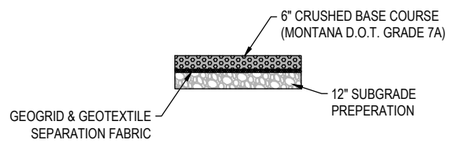
1. ALL DISTURBED LANDSCAPE AREAS SHALL BE RE-LANDSCAPED WITH A MINIMUM 6 INCHES OF TOPSOIL AND RE-SEEDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 32 92 19 SEEDING OF THE PROJECT SPECIFICATIONS, UTILIZING A SEED MIX OR SOD APPROVED BY THE OWNER/ENGINEER AND AFFECTED PROPERTY OWNER(S).
    a. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING NEW LANDSCAPING UNTIL VEGETATION HAS BEEN FULLY ESTABLISHED, UNLESS OTHER ARRANGEMENTS ARE MADE AND APPROVED BY OWNER/ENGINEER.

MISCELLANEOUS:

1. THIS SECTION RESERVED.

MATERIAL & UTILITY SUMMARY

ITEM	UNIT	QUANTITY
6" CRUSHED BASE COURSE	SY	767
CLEARING AND GRUBBING	CY	128



1 C-1 **GRAVEL SECTION DETAIL**
Scale: NTS

Rev No	Date	By	Description

CARBON COUNTY SALT BUILDING SITE PLAN
CARBON COUNTY
RED LODGE

CONSTRUCTION NOTES

Drawn By: TSS | Surveyed By: RLS | Project No: WR22-04-351
Checked By: LT | Designed By: INITIALS | Date: 2/12/2024

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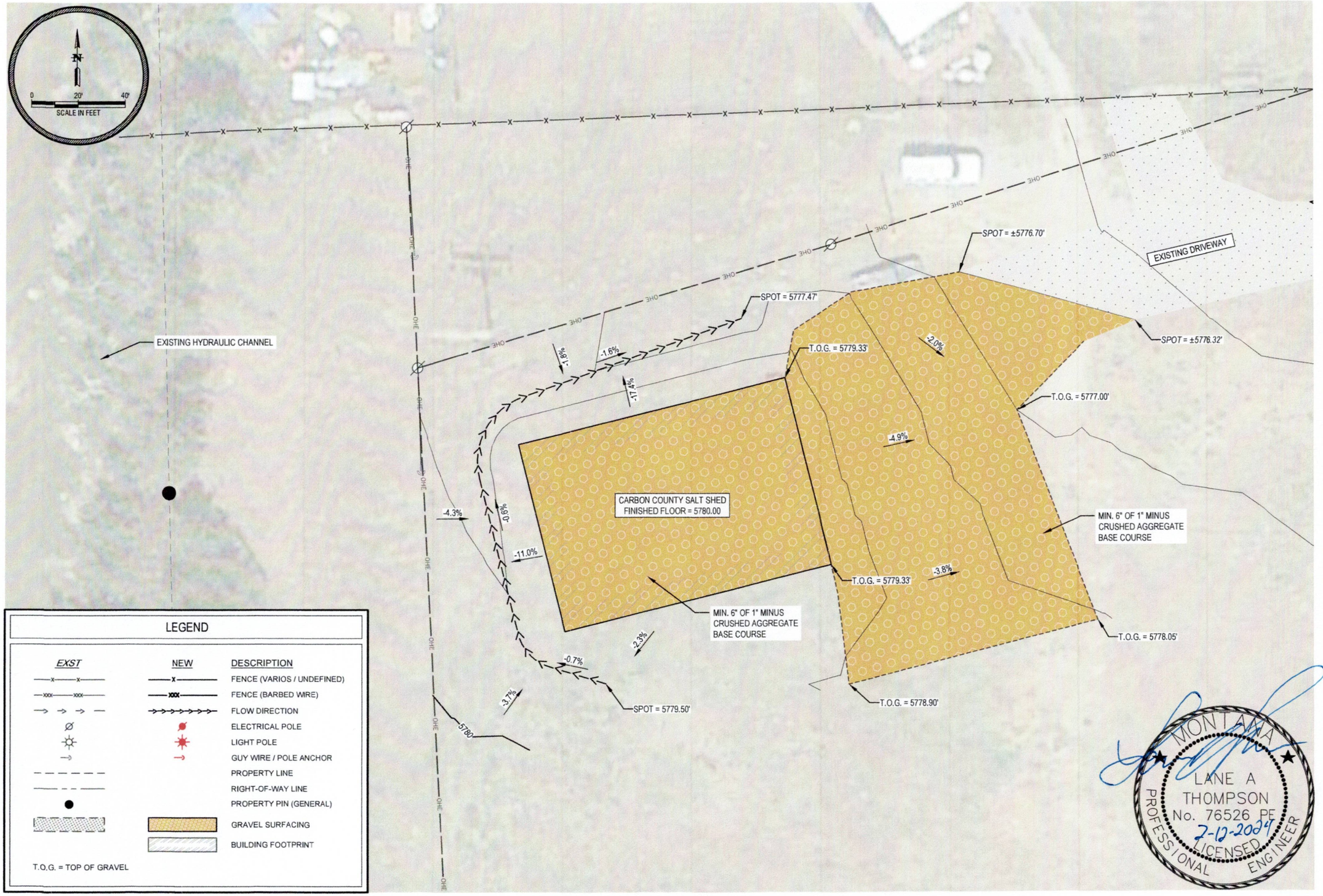
SECTION
C

1
SHEET NO.



LEGEND

EXST	NEW	DESCRIPTION
		FENCE (VARIOS / UNDEFINED)
		FENCE (BARBED WIRE)
		FLOW DIRECTION
		ELECTRICAL POLE
		LIGHT POLE
		GUY WIRE / POLE ANCHOR
		PROPERTY LINE
		RIGHT-OF-WAY LINE
		PROPERTY PIN (GENERAL)
		GRAVEL SURFACING
		BUILDING FOOTPRINT

T.O.G. = TOP OF GRAVEL

Rev No.	Date	By	Description

CARBON COUNTY SALT BUILDING SITE PLAN
CARBON COUNTY
RED LODGE

GRADING PLAN

Drawn By: TSS | Surveyed By: RLS | Project No: WR22-04-351
Checked By: LT | Designed By: INITIALS | Date: 2/12/2024

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LANE A
THOMPSON
No. 76526 PE
2-12-2024
LICENSED
PROFESSIONAL ENGINEER

SECTION C
SHEET NO. 2

X:\2022\WR\04\WR22-04-351-CarbonCo_Arete_SaltBuilding\20_CADD_WR2204351\Bid_Sheets_ALL_IE_PLAN-SHEETS-(WR2204351).dwg 2/12/2024

MATERIALS AND STRENGTHS

CONCRETE & REINFORCING SCHEDULE

ASTM C150 TYPE V CEMENT

ITEM (CONCRETE CLASS)	28-DAY COMPRESSIVE STRENGTH				AIR ENTRAINMENT	REMARKS
	2500 PSI	4000 PSI	4500 PSI	5000 PSI		
WATER/CEMENT RATIO	0.50 MAX	0.45 MAX	0.45 MAX	0.4 MAX		
ALL CONCRETE UNO				●		
FOOTINGS, FOUNDATION WALLS, PILASTERS				●	6-7% ENTRAINED AIR	

NOTES:
AIR CONTENT +/- 1.5% AT POINT OF DISCHARGE

REINFORCING	
REINFORCING BARS	ASTM A615 GRADE 60

ABBREVIATIONS

A.B.	ANCHOR BOLTS
AFF	ABOVE FINISH FLOOR
ANC	ANCHOR
A.R.	ANCHOR RODS
ARCH	ARCHITECT OF RECORD OR THE ARCHITECTURAL DRAWINGS
BM	BEAM
BOT	BOTTOM
CANT	CANTILEVER
CJ	CONTROL JOINT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
DIA	DIAMETER
(E)	EXISTING
EA	EACH
EF	EACH FACE
EL	ELEVATION
EQ	EQUAL
EW	EACH WAY
EXP	EXPANSION
FDN	FOUNDATION
F/S	FAR SIDE
FS	FOOTING STEP
FTG	FOOTING
F.V.	FIELD VERIFY
GA	GAGE
GC	GENERAL CONTRACTOR
GL	GLUED LAMINATED TIMBER
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHORS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LVL	LAMINATED VENEER LUMBER
MAX	MAXIMUM
MECH	MECHANICAL ENGINEER OR DRAWINGS
MIN	MINIMUM
N/S	NEAR SIDE
OC	ON CENTER
OD	OUTSIDE DIAMETER
O.F.	OPPOSITE FACE
OPP	OPPOSITE
PAF	POWER-ACTUATED FASTENER
PEMB	PRE-ENGINEERED METAL BUILDING
PL	PLATE
PT	PRESERVATIVE - TREATED
SEOR	STRUCTURAL ENGINEER ON RECORD
SIP/SIPS	STRUCTURAL INSULATED PANEL SYSTEM
SOG	SLAB ON GRADE
SPA	SPACING OR SPACES
STD	STANDARD
T&B	TOP AND BOTTOM
TC	TOP OF CONCRETE
TF	TOP OF FOOTING
TS	TOP OF STEEL
TD	TOP OF DECK
T.O.	TOP OF
TW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE OF STEEL
VERT	VERTICAL
WF	WIDE FLANGE
WS	WALL STEP

PLAN VIEW LEGEND

MARK	DESCRIPTION
1|	STRUCTURAL WALL TAG
SWx	SHEAR WALL TAG
Sx	INDICATES SLAB TYPE - SEE SCHEDULE
Fx	INDICATES FOOTING SIZE - SEE SCHEDULE
Px	INDICATES PIER/PILASTER/PEDESTAL SIZE - SEE SCHEDULE
?	INDICATES KEYNOTE - SEE SCHEDULE
HDU# ►	INDICATES HOLD DOWN
# S101	INDICATES DETAIL CUT
	INDICATES BUILDING SECTION OR FRAMING ELEVATION
# S101	INDICATES BUILDING ELEVATION
	INDICATES STRUCTURAL EXTENTS OPEN ARROW - EXTENTS FILLED ARROW - SPAN DIRECTION
	ELEVATION
	VERTICAL BRACE
	MOMENT FRAME CONNECTION
	CANTILEVER MOMENT FRAME CONNECTION
	EMBED PLATE CONNECTION
	INDICATES CONCRETE/MASONRY WALL JOINT
	INDICATES STEP

DESIGN INFORMATION

DESIGN CRITERIA ASCE 7-16

DEAD LOAD	
BUILDING DEAD LOAD	SEE PEMB DRAWINGS
LIVE LOAD	
ROOF LIVE LOAD	20 PSF
SNOW LOAD DESIGN CRITERIA	
GROUND SNOW LOAD (Pg)	111 PSF
FLAT ROOF SNOW LOAD (Pf)	85 PSF
IMPORTANCE FACTOR (Iw)	1.00
EXPOSURE CATEGORY Ce (SNOW EXPOSURE FACTOR)	1.0
THERMAL FACTOR (Ct)	1.0
MINIMUM ROOF SNOW LOAD	85 PSF
DRIFTING & UNBALANCED LOADING PER ASCE 7	
WIND DESIGN CRITERIA	
RISK CATEGORY	II
BASIC WIND SPEED	110 mph
EXPOSURE	C
SEISMIC DESIGN CRITERIA	
RISK CATEGORY	II
IMPORTANCE FACTOR (Ie)	1.00
SOIL SITE CLASS	D - Default
SPECTRAL ACCELERATION Ss	31.4%
SPECTRAL ACCELERATION S1	10%
SPECTRAL RESPONSE COEFFICIENT Sds	0.32g
SPECTRAL RESPONSE COEFFICIENT Sd1	0.16g
SEISMIC DESIGN CATEGORY	C
BASIC SEISMIC FORCE RESISTING SYSTEM	CONCRETE SHEAR WALLS/ STEEL FRAME
FUTURE EXPANSION: No future expansion provisions have been included in the design	

EARTHWORK CRITERIA

GEOTECHNICAL REPORT:	
GEOSCIENCE, PLLP	DATED: DEMEBER 5, 2022
ALL FOUNDATIONS TO BE SUPPORTED ON COMPACTED IN-SITU SANDY GRAVEL	
ALLOWABLE BEARING PRESSURE	3500 PSF
COMPACTION REQUIREMENTS:	ASTM D698 - MAXIMUM DRY DENSITY
BELOW FOUNDATION	98%
UNDER SLABS	98%
AROUND EXTERIOR FOUNDATION WALLS	98%
TESTING FREQUENCIES	
STRUCTURAL FILL BELOW SLABS	ONE (1) COMPACTION TEST AT LEAST EVERY 500 SQUARE FEET, PER EACH 8-INCH LIFT
STRUCTURAL FILL BELOW FOUNDATIONS	ONE (1) COMPACTION TEST AT LEAST EVERY 150 LINEAR FEET, OR TWO (2) PER TRENCH, WHICHEVER RESULTS IN THE GREATER NUMBER OF TESTS, PER EACH 8-INCH LIFT OF FILL
FOUNDATION WALL BACKFILL	ONE (1) COMPACTION TEST EVERY 150 LINEAR FEET OF WALL, OR TWO (2) TESTS PER WALL LINE (INTERIOR AND EXTERIOR SIDES), WHICHEVER RESULTS IN THE GREATER NUMBER OF TESTS, PER EACH 8-INCH LIFT OF BACKFILL
NOTE: ALL FILL TO BE PLACED IN 8" LIFTS UNO	

STRUCTURAL NOTES

GENERAL NOTES FOR STRUCTURAL SYSTEMS
==========

=== DIVISION 1A - DESIGN INFORMATION ===

GOVERNING CODE: INTERNATIONAL BUILDING CODE (IBC), 2021 EDITION

LATERAL FORCE RESISTING SYSTEM: CONCRETE SHEAR WALLS / STEEL FRAMES

=== DIVISION 1B - GENERAL REQUIREMENTS ===

VERIFY EXISTING CONDITIONS AND PROMPTLY NOTIFY A/E OF ANY CONDITIONS THAT MIGHT REQUIRE CHANGES TO THE WORK.

CHECK & APPROVE SHOP DRAWING SUBMITTALS BEFORE SUBMITTING TO DESIGN TEAM.

DRAWINGS ARE DIAGRAMMATIC AND ARE NOT SCALABLE. DO NOT SCALE DRAWINGS.

COORDINATE DIMENSIONS, OPENINGS, EMBEDDED ITEMS & OTHER CONDITIONS ON ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND TRADES BEFORE CONSTRUCTION.

SIZES OF OPENINGS IN SLABS, FLOORS, WALLS, DECKS, ROOFS, ETC., ARE NOT SHOWN ON THESE DRAWINGS. DETERMINING SIZES OF OPENINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. OPENINGS SHALL BE APPROPRIATELY SIZED TO SUIT THE RELATED REQUIREMENTS.

PROVIDE TEMPORARY SUPPORT DURING CONSTRUCTION AS REQUIRED, UNTIL STRUCTURAL ELEMENTS ARE PERMANENTLY ATTACHED. DRAWINGS INDICATE STRUCTURE IN FINAL FORM CAPABLE OF SUPPORTING DESIGN LOADS.

DETAILS ARE SHOWN FOR MOST CONDITIONS. UNDETAILED CONDITIONS SHALL BE CONSTRUCTED SAME AS THE MOST SIMILAR CONDITION.

=== DIVISION 1C - SUBMITTALS ===

PROVIDE SUBMITTALS:
CONCRETE MIX DESIGNS
REINFORCING BAR LAYOUT
PRE-ENGINEERED STEEL BUILDING
ANCHOR RODS

=== DIVISION 2 - SOILS AND EARTHWORK ===

PROVIDE POSITIVE DRAINAGE FOR 10'-0" AWAY FROM FOUNDATIONS.

DRAINAGE GRAVEL: CRUSHER RUN GRAVEL, ASTM D448 SIZE 57. 100% PASSING THE 1-1/2" SIEVE, 0% TO 5% PASSING THE #8 SIEVE.

FOLLOW ALL APPLICABLE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.

=== DIVISION 3A - CONCRETE, GENERAL ===

ANCHOR RODS (STRAIGHT): ASTM F1554 36 KSI RODS, ASTM A563-A NUTS (EMBEDMENT INTO CONCRETE SHALL BE 2'-0")

CLEAR COVER FOR REINFORCING BARS:
- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
- FORMED CONCRETE OTHERWISE: 2"

REINFORCING BAR SUPPORTS:
WHERE BAR SUPPORTS CARRY WEIGHT OF REINFORCING, SUPPORTS SHALL BE MADE OF CONCRETE OR STEEL. DO NOT USE MASONRY ELEMENTS, WOOD, PLASTIC OR ANY SIMILAR MATERIAL TO SUPPORT REINFORCING.

BAR LAP SPLICES: 60 BAR DIAMETERS, UNLESS SHOWN OTHERWISE.

PROVIDE CORNER BARS, WITH LAP SPLICES AS INDICATED, FOR ALL HORIZONTAL REINFORCING BARS.

SECURE EMBEDDED ITEMS BEFORE PLACING CONCRETE. DO NOT WET-STAB OR WET-SET DOWELS, ANCHORS, OR ANY OTHER EMBEDDED ITEMS.

=== DIVISION 3B - CONCRETE FOOTINGS ===

PLACE CONTINUOUS FOOTINGS IN A SINGLE POUR. DO NOT USE CONSTRUCTION JOINTS UNLESS APPROVED BY THE ENGINEER.

=== DIVISION 3C - CONCRETE WALLS ===

PLACE WALLS IN SINGLE POURS. DO NOT USE CONSTRUCTION JOINTS UNLESS APPROVED BY THE ENGINEER.

=== DIVISION 3D - CONCRETE FOUNDATIONS SUBJECT TO CHANGE ===

FOUNDATIONS AND REINFORCING ARE SIZED BASED ON ESTIMATED BUILDING REACTIONS. THIS WILL BE REVIEWED BY THE ENGINEER WHEN ACTUAL BUILDING REACTIONS ARE KNOWN. FOOTING SIZES AND REINFORCING MAY BE ADJUSTED BY THE ENGINEER AT THAT TIME. CONTRACTOR WILL PROVIDE ADJUSTED FOOTINGS AND REINFORCING AT NO ADDED COST TO THE OWNER.

=== DIVISION 5 - POST-INSTALLED MECHANICAL ANCHORS ===

ANCHORS SHALL BE SIMPSON BRAND UNLESS ENGINEER APPROVES OTHER.

ANCHORS SHALL BE CORROSION-RESISTANT.

ADHESIVE ANCHORS: A36 STEEL THREADED RODS WITH CHISEL POINT END, SIMPSON AT-XP ADHESIVE. MINIMUM EMBEDMENT OF 8 DIAMETERS, UNLESS NOTED OTHERWISE.

EXPANSION ANCHORS: SIMPSON STRONG-BOLT 2. MINIMUM EMBEDMENT OF 8 DIAMETERS, UNLESS NOTED OTHERWISE.

SCREW ANCHORS: SIMPSON TITEN HD. MINIMUM EMBEDMENT OF 8 DIAMETERS, UNLESS NOTED OTHERWISE.

=== DIVISION 13 - PRE-ENGINEERED STEEL BUILDING ===

THE PRIMARY BUILDING SUPERSTRUCTURE IS A PRE-ENGINEERED STEEL BUILDING, DESIGNED BY OTHERS.

USE INDICATED DESIGN CRITERIA.

FOUNDATIONS AND REINFORCING ARE SIZED BASED ON ESTIMATED BUILDING REACTIONS. THIS WILL BE REVIEWED BY THE ENGINEER WHEN ACTUAL BUILDING REACTIONS ARE KNOWN. FOOTING SIZES AND REINFORCING MAY BE ADJUSTED BY THE ENGINEER AT THAT TIME. CONTRACTOR WILL PROVIDE ADJUSTED FOOTINGS AND REINFORCING AT NO ADDED COST TO THE OWNER.

PROVIDE ANCHOR ROD DIAMETERS AS RECOMMENDED BY THE STEEL BUILDING MANUFACTURER. PROVIDE MINIMUM EMBEDMENT AS INDICATED. PLACE ANCHOR RODS INBOARD OF THE OUTER LINES OF REINFORCING.

COORDINATE THE SIZE OF THE FOUNDATION TO ACCOMMODATE THE SUPPLIED STEEL BUILDING.

PROVIDE FOUNDATION AND SLAB NOTCHES, OFFSETS, RECESSES, EMBEDMENTS, ETC., AS RECOMMENDED BY THE STEEL BUILDING MANUFACTURER.

STRUCTURAL DRAWINGS

SHEET NUMBER	SHEET NAME
S001	GENERAL NOTES & TYPICAL DETAILS
S002	GENERAL NOTES & TYPICAL DETAILS
S101	PLAN VIEWS
S501	DETAILS

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CARBON COUNTY MONTANA
NEW SALT SHED

Date FEBRUARY 14, 2024
Issue CONSTRUCTION DOCUMENTS
Project Number 2022-36.1
Revisions 1

GENERAL NOTES & TYPICAL DETAILS

S001

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STATEMENT OF SPECIAL INSPECTIONS

SCOPE
A systematic approach to required IBC inspections and testing in order to provide a finished structure that meets or exceeds the minimum performance expectation in accordance with the following program and tables:

SPECIAL INSPECTION PROGRAM

Owner shall select inspection agency once project has been awarded.

STRUCTURAL OBSERVATIONS
EOR will provide structural observations during construction, review the concrete mix design, reinforcing steel and placement, and concrete anchors.

Structural observation frequency:
1. Steel framing
2. Reinforcing placement
3. Concrete placement
4. Final structure: with written report to the Building Official

SPECIAL INSPECTIONS
Inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

All Special Inspectors shall be under the direct supervision of a registered Montana PE (with structural experience) or SE.

Statement of Special Inspections
This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. See schedule of Special Inspection services as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompasses STRUCTURAL discipline including the following building systems:
1. Soils and Foundations
2. Cast-in-Place Concrete

Inspection Frequency as indicated and in accordance with the following:
- **Continuous:** Special inspection by the *special inspector* who is continuously present when and where the work to be inspected is being performed.
- **Periodic:** Special inspection by the *special inspector* who is intermittently present where the work to be inspected has been or is being performed.

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities. The Special Inspection program does not authorize Inspectors to modify the structural plans or details.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge. Interim Report Frequency: weekly (minimum)

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Special Inspector Qualifications
Credentials shall be provided if requested.

PE/SE Structural Engineer; a licensed SE/PE specializing in the design of building structures.
PE/GE Geotechnical Engineer; a licensed PE specializing in soil mechanics and foundations.
EIT Engineer-In-Training; a graduate engineer who has passed the Fundamentals of Engineering examination.

American Concrete Institute (ACI) Certification
ACI-CFTT Concrete Field Testing Technician – Grade 1
ACI-CCI Concrete Construction Inspector
ACI-LTT Laboratory Testing Technician – Grade 1&2
ACI-STT Strength Testing Technician

American Welding Society (AWS) Certification
AWS-CWI Certified Welding Inspector
AWS/AISC-SSI Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification
ASNT Non-Destructive Testing Technician – Level II or III

International Code Council (ICC) Certification
ICC-SMSI Structural Masonry Special Inspector
ICC-SWSI Structural Steel and Welding Special Inspector
ICC-SFSI Spray-Applied Fireproofing Special Inspector
ICC-PCSI Prestressed Concrete Special Inspector
ICC-RCSI Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)
NICET-CT Concrete Technician – Levels I, II, III & IV
NICET-ST Soils Technician - Levels I, II, III & IV
NICET-GET Geotechnical Engineering Technician - Levels I, II, III & IV

Quality Assurance Plan
Quality Assurance for Seismic Resistance
Seismic Force Resisting System and Designated Seismic Systems:
Contractor or subcontractor responsible for construction or fabrication of systems or components shall submit a Statement of Responsibility for the items listed.

Quality Assurance for Wind Resistance
Wind Resisting System and Designated Wind Resisting Components:
Contractor or subcontractor responsible for construction or fabrication of systems or components shall submit a Statement of Responsibility for the items listed.

IBC 2018 TABLE 1705.6 REQUIRED VERIFICATION AND INSPECTION OF SOILS

TYPE	CONTINUOUS	PERIODIC	TESTING AGENCY
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.		●	OWNER'S TESTING AGENCY
2. Verify excavations are extended to proper depth and have reached proper material.		●	OWNER'S TESTING AGENCY
3. Perform classification and testing of compacted fill materials.		●	OWNER'S TESTING AGENCY
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	●		OWNER'S TESTING AGENCY
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.		●	OWNER'S TESTING AGENCY

IBC 2019 TABLE 1705.3 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC 2018 REFERENCE	TESTING AGENCY
1. Inspect reinforcement, and verify placement.		●	ACI 318: Ch.20,25.3, 25.3, 26.6.1-26.6.3	1908.4	OWNER'S TESTING AGENCY
2. Inspect anchors cast in concrete.		●	ACI 318: 17.8.2		OWNER'S TESTING AGENCY
3. Inspect anchors post-installed in hardened concrete members.					
a. Mechanical anchors and adhesive anchors		●	ACI 318: 17.8.2		OWNER'S TESTING...
4. Verify use of required design mix.		●	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3	OWNER'S TESTING AGENCY
5. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of concrete.	●		ASTM C172, C31 ACI 318: 26.5, 26.12	1908.10	OWNER'S TESTING AGENCY
6. Inspect concrete placement for proper application techniques.	●		ACI 318: 26.5	1908.6, 1908.7, 1908.8	OWNER'S TESTING AGENCY
7. Verify maintenance of specified curing temperature an techniques.		●	ACI 318: 26.5.3-26.5.5	1908.9	OWNER'S TESTING AGENCY
8. Inspect formwork for shape, location, and dimension of concrete member being formed.		●	ACI 318; 26.11.1.2(b)		OWNER'S TESTING AGENCY

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CARBON COUNTY MONTANA
NEW SALT SHED

Date FEBRUARY 14, 2024
Issue CONSTRUCTION DOCUMENTS
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Revisions

GENERAL NOTES & TYPICAL DETAILS

S002

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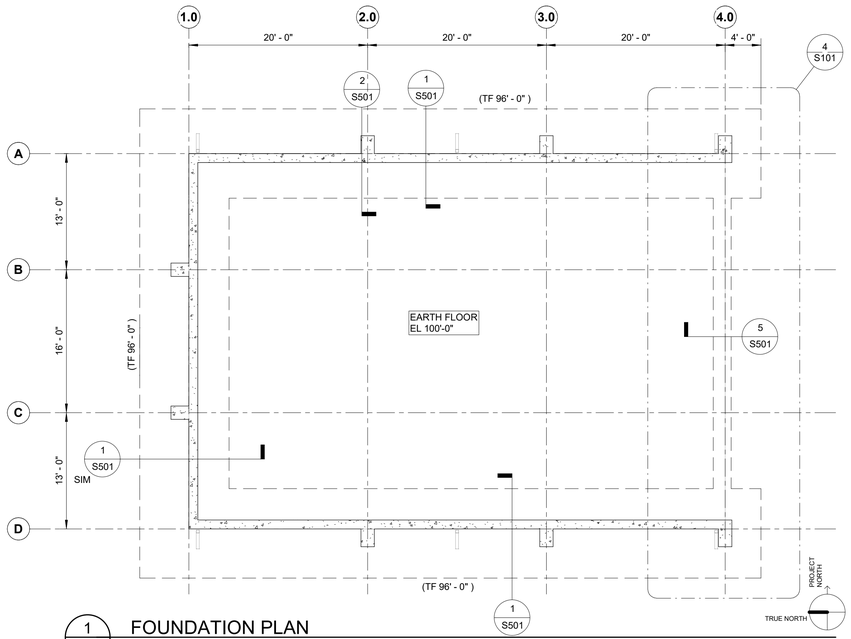
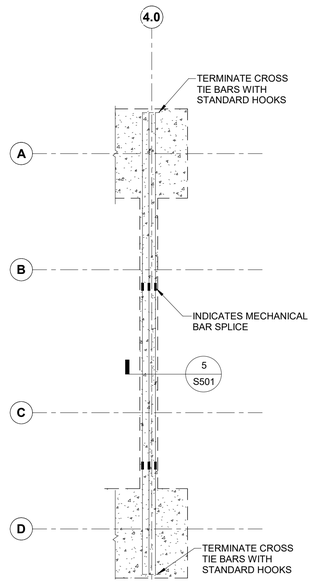
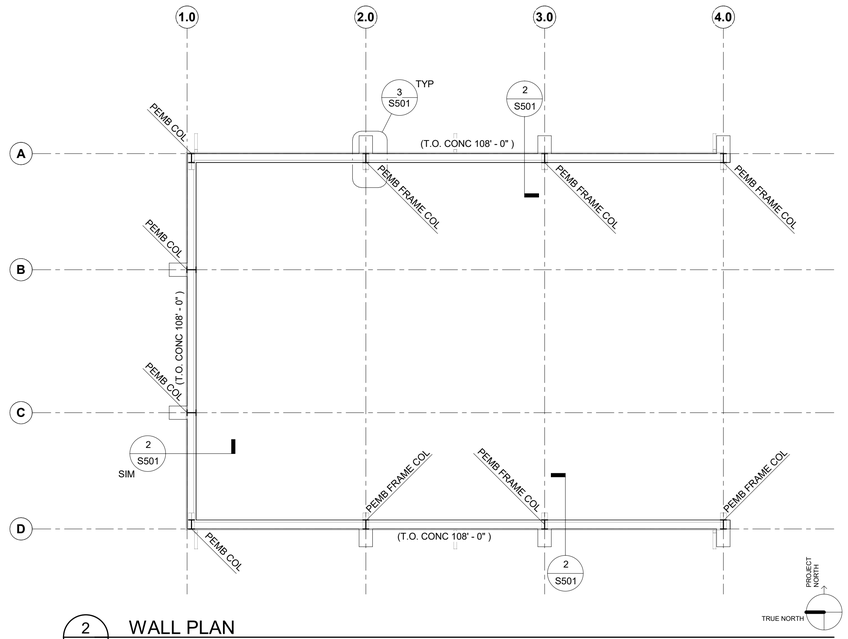


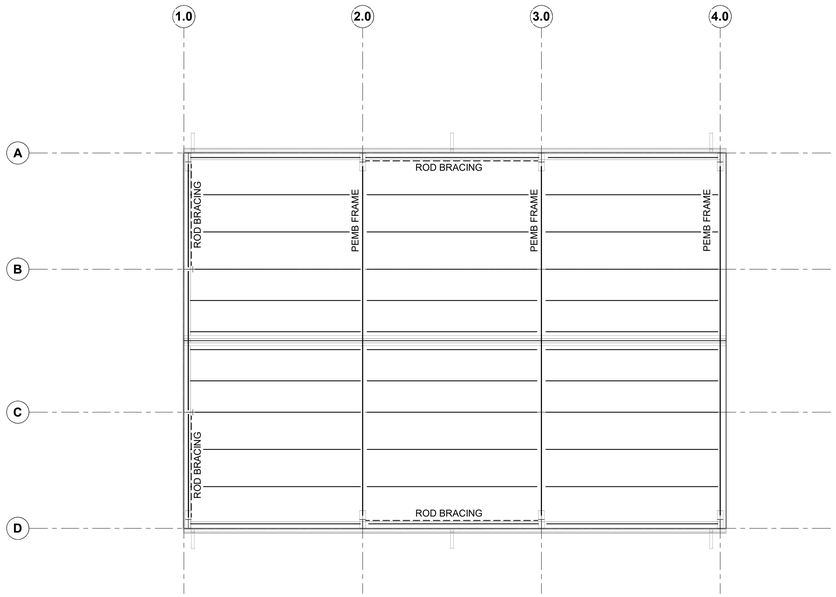
1 S101 FOUNDATION PLAN
1/8" = 1'-0"



4 S101 CROSS TIE PLAN
1/8" = 1'-0"



2 S101 WALL PLAN
1/8" = 1'-0"



3 S101 ROOF FRAMING PLAN
1/8" = 1'-0"

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CARBON COUNTY MONTANA
NEW SALT SHED

Date FEBRUARY 14, 2024
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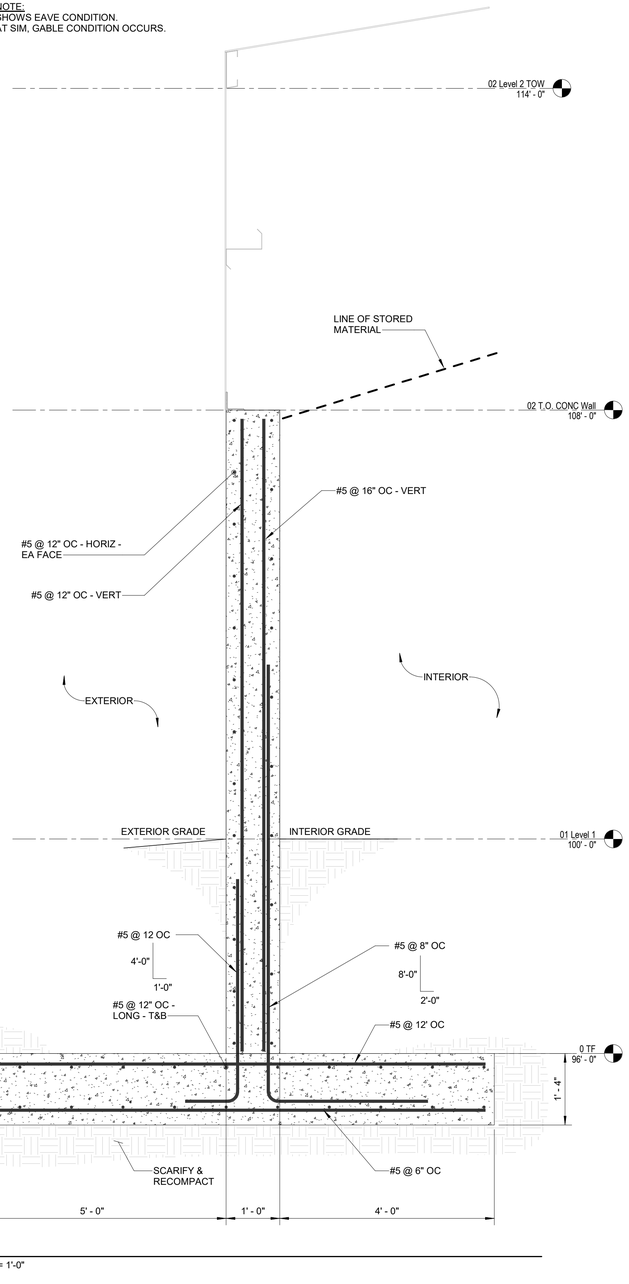
PLAN VIEWS

S101

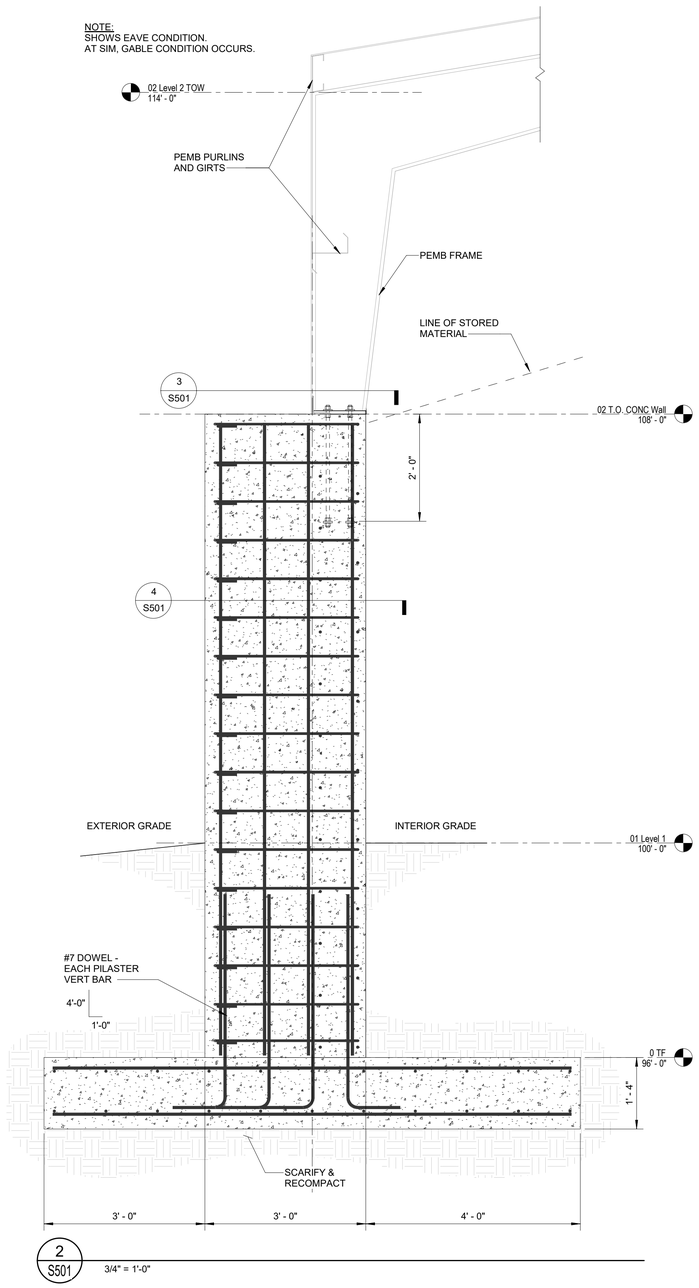
2/14/2024 10:54:00 AM

NOTE:
SHOWS EAVE CONDITION.
AT SIM, GABLE CONDITION OCCURS.

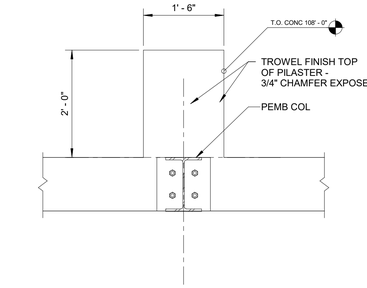


1 S501 3/4" = 1'-0"

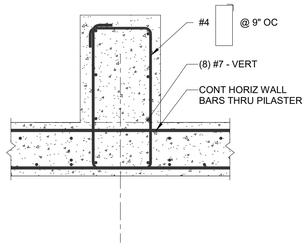
NOTE:
SHOWS EAVE CONDITION.
AT SIM, GABLE CONDITION OCCURS.



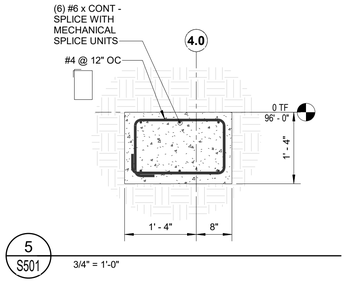
2 S501 3/4" = 1'-0"



3 S501 3/4" = 1'-0"



4 S501 3/4" = 1'-0"



5 S501 3/4" = 1'-0"

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DETAILS

S501

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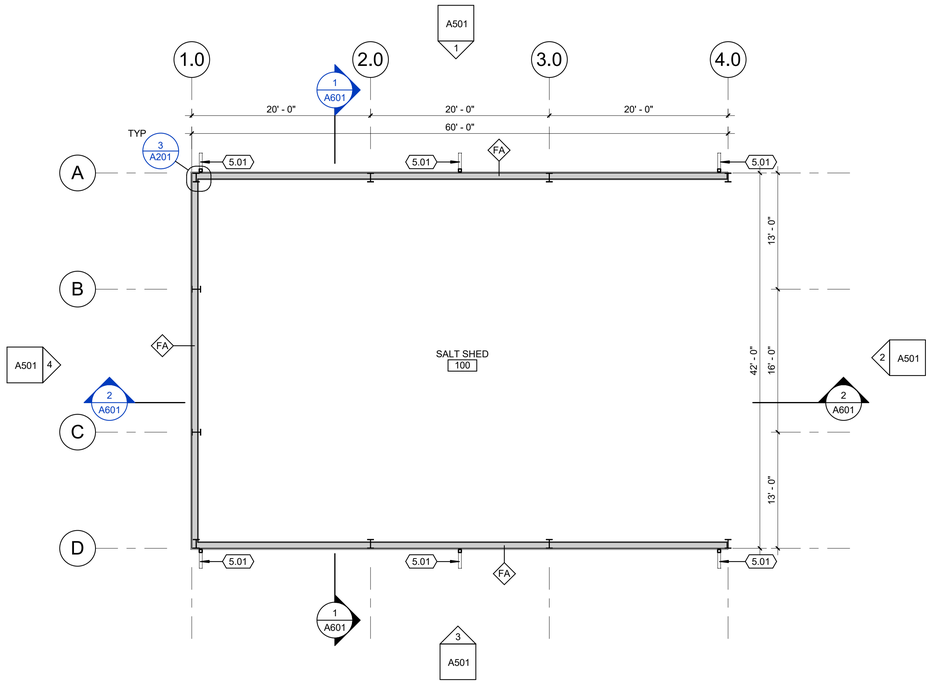

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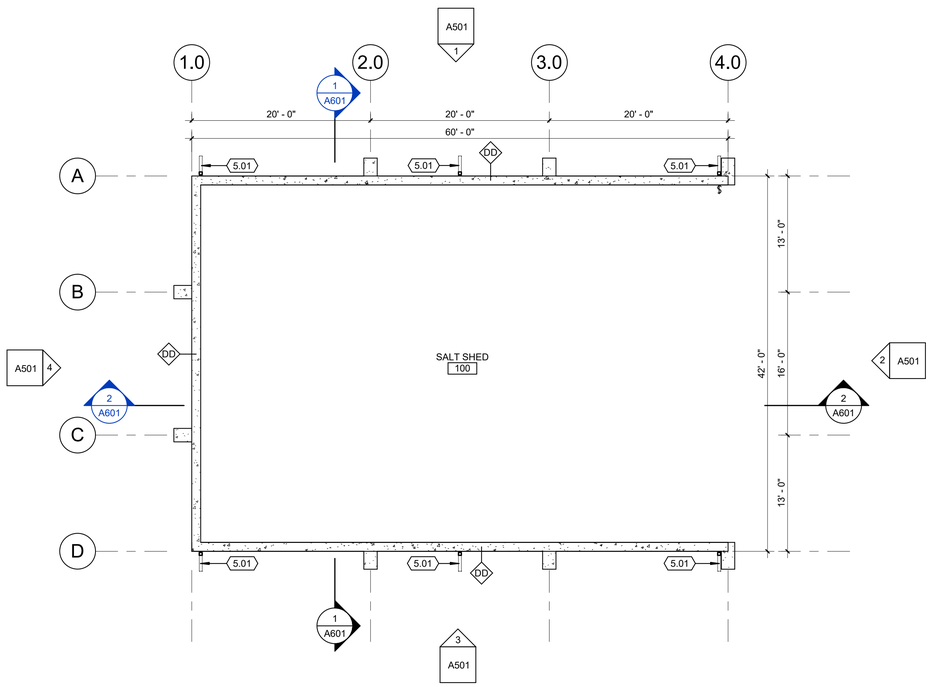
2 A201 FLOOR PLAN - ABOVE 8'

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



N

1 A201 FLOOR PLAN - BELOW 8'

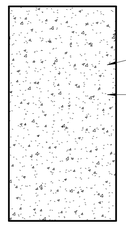
SCALE: 1/8" = 1'-0"

XX.XX KEYNOTES

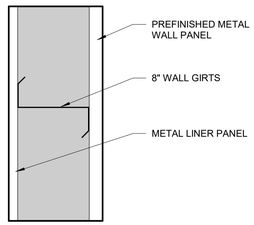
5.01	PREFINISHED METAL DOWNSPOUT.

FLOOR PLAN SYMBOL LEGEND

- X / AX.X — EXTERIOR BUILDING ELEVATION REFERENCE
- 1 / A-101 SIM — BUILDING/WALL SECTION REFERENCE
- 1 / A101 SIM — DETAIL REFERENCE
- 1 / A101 SIM — DETAIL REFERENCE
- 10.01 — KEYNOTE
- ROOM NAME / 101 — ROOM DESIGNATION REFERENCE
- AA — WALL TYPE / VERTICAL ASSEMBLY TYPE
- WALL TYPE NOTE

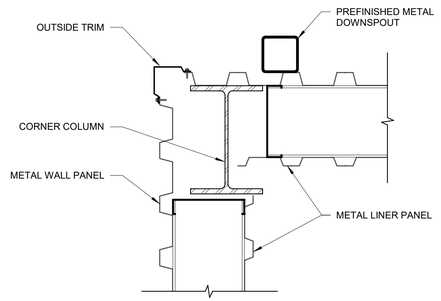


WALL TYPE **DD**



WALL TYPE **FA**

X WALL TYPES



3 A201 TYPICAL BUILDING CORNER PLAN DETAIL

SCALE: 1 1/2" = 1'-0"

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FLOOR PLAN

A201

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GENERAL REFLECTED CEILING PLAN NOTES

1. ELECTRICAL DEVICES AND FIXTURES ARE SHOWN FOR COORDINATION ONLY. RE: ELECTRICAL SHEETS FOR INFORMATION.

XX.XX KEYNOTES

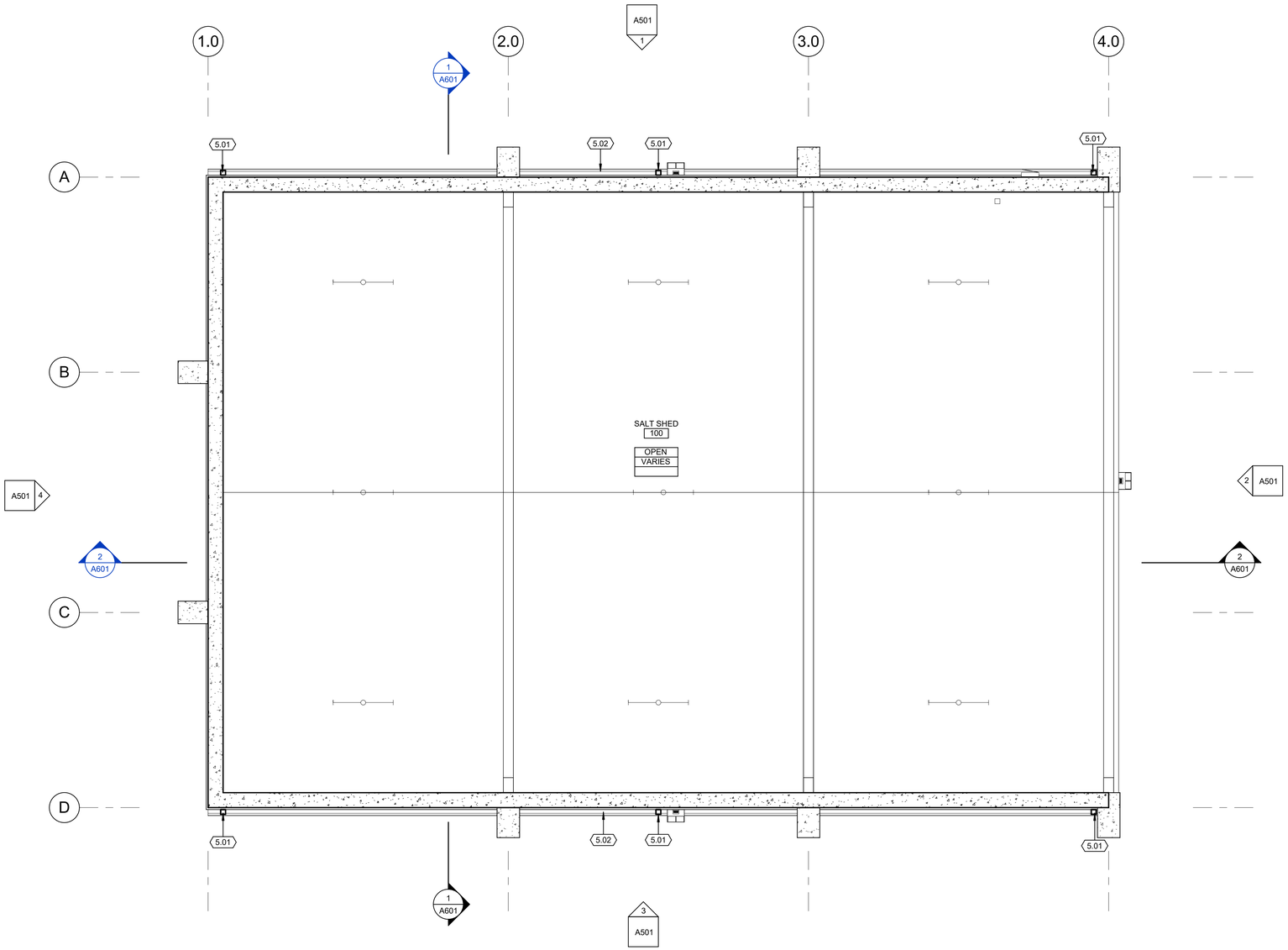
5.01 PREFINISHED METAL DOWNSPOUT.
5.02 PREFINISHED METAL GUTTER.

CEILING PLAN LEGEND

FINISH
HEIGHT
NOTES

FINISH ABBREVIATIONS:

OPEN: OPEN TO STRUCTURE



N

1 A301 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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REFLECTED CEILING PLAN

A301

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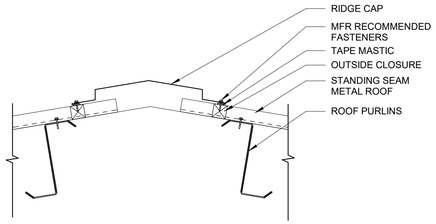
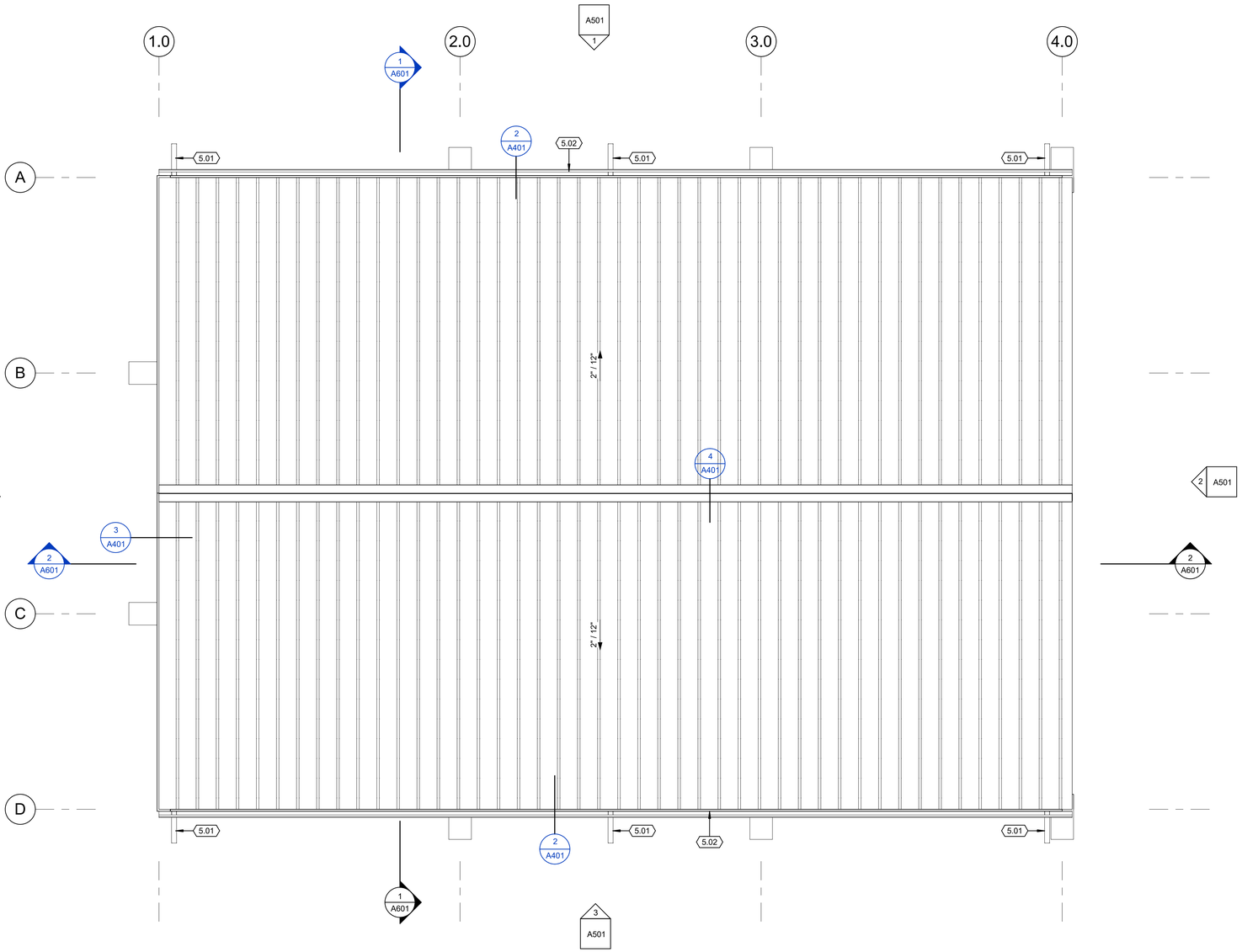


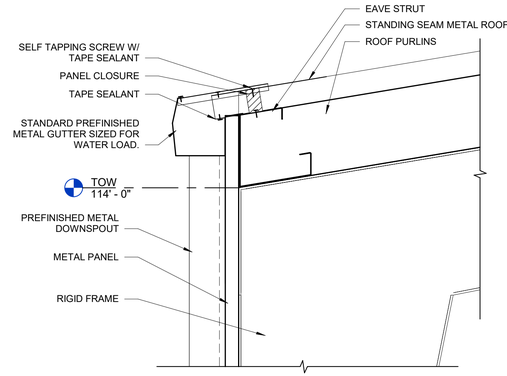
4 A401 STANDING SEAM RIDGE DETAIL
SCALE: 1 1/2" = 1'-0"



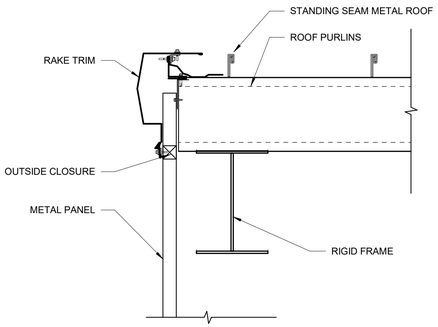
1 A401 ROOF PLAN
SCALE: 1/4" = 1'-0"

XX.XX KEYNOTES

5.01 PREFINISHED METAL DOWNSPOUT.
5.02 PREFINISHED METAL GUTTER.



2 A401 EAVE ROOF DETAIL
SCALE: 1 1/2" = 1'-0"



3 A401 RAKE ROOF DETAIL
SCALE: 1 1/2" = 1'-0"

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ROOF PLAN

A401

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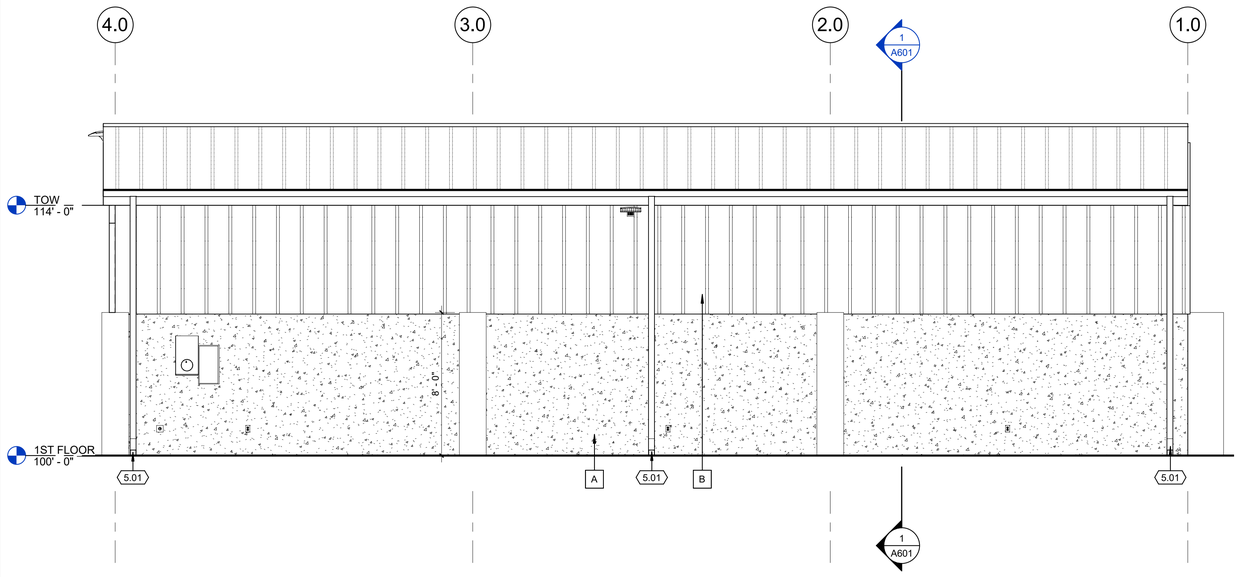
BUILDING ELEVATIONS LEGEND

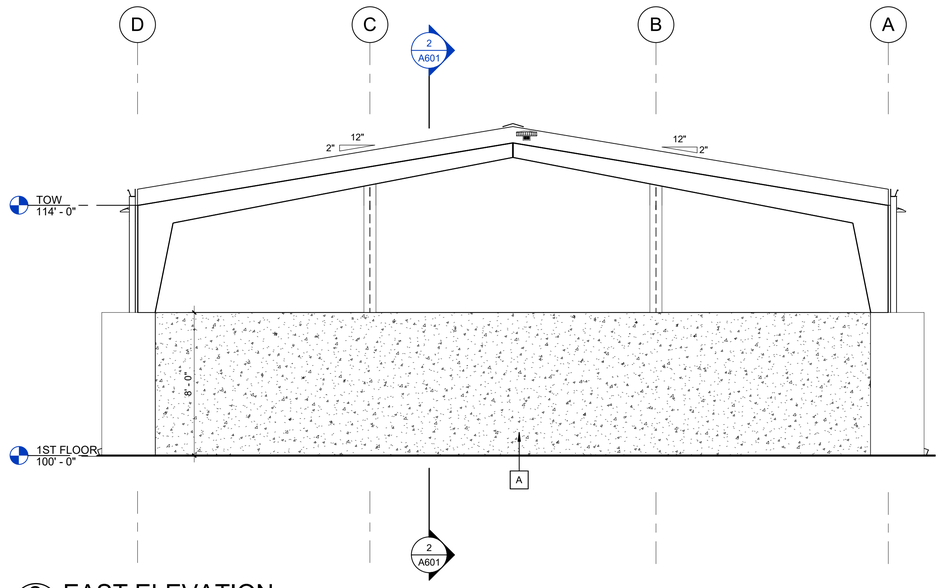
A	CONCRETE
B	METAL PANEL
LOCATION / HEIGHT	VERTICAL ELEVATION HEIGHT

XX.XX KEYNOTES

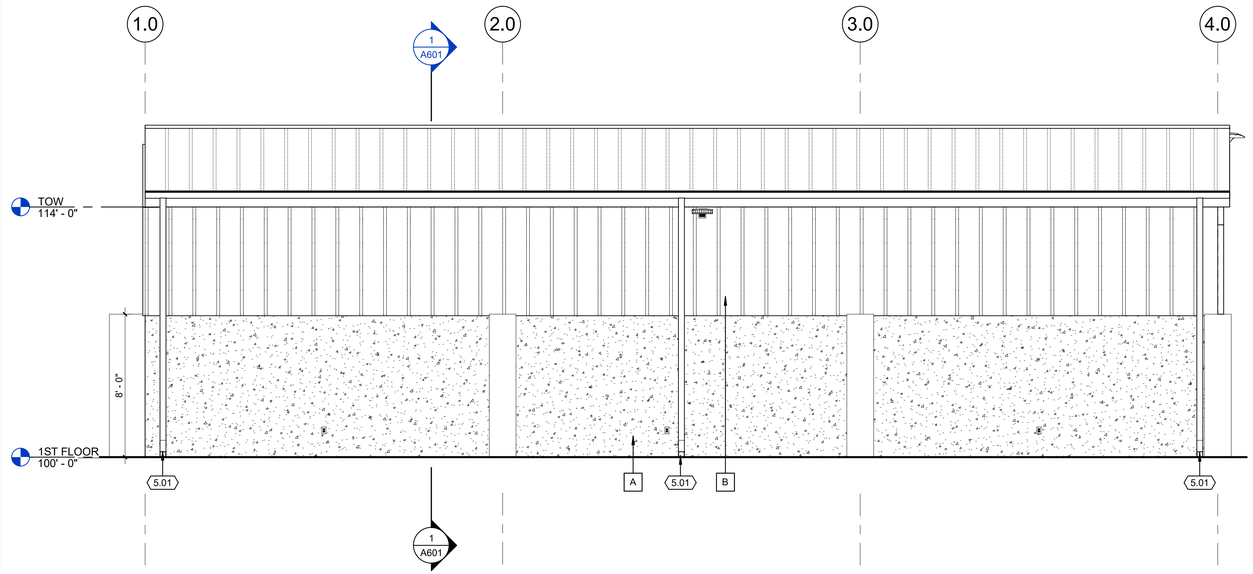
5.01	PREFINISHED METAL DOWNSPOUT.



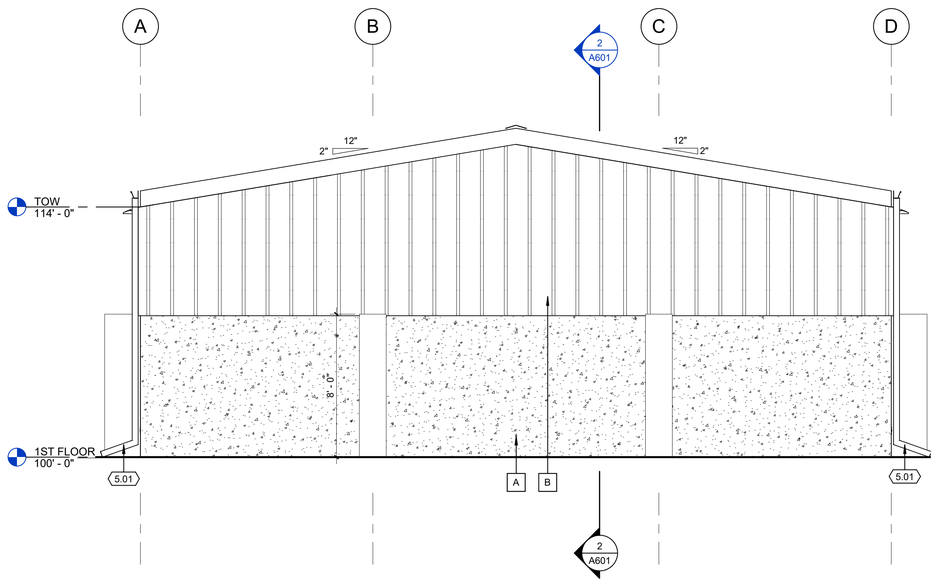
1 A501 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



2 A501 EAST ELEVATION
SCALE: 1/4" = 1'-0"



3 A501 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



4 A501 WEST ELEVATION
SCALE: 1/4" = 1'-0"

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BUILDING ELEVATIONS

A501

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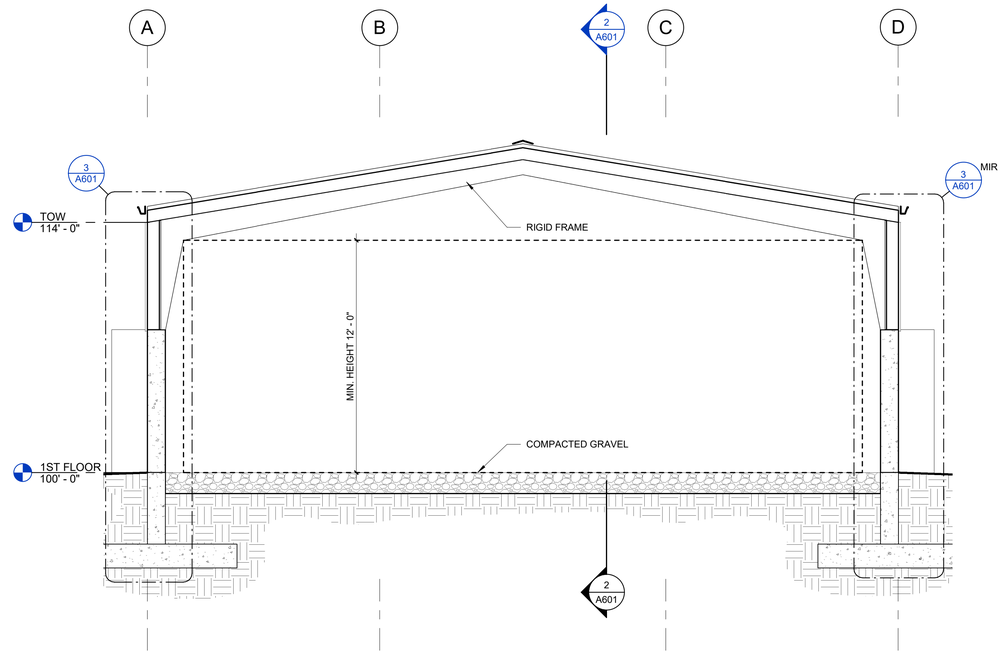
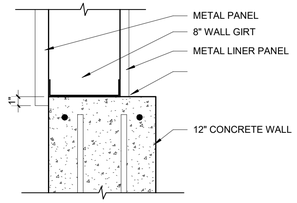
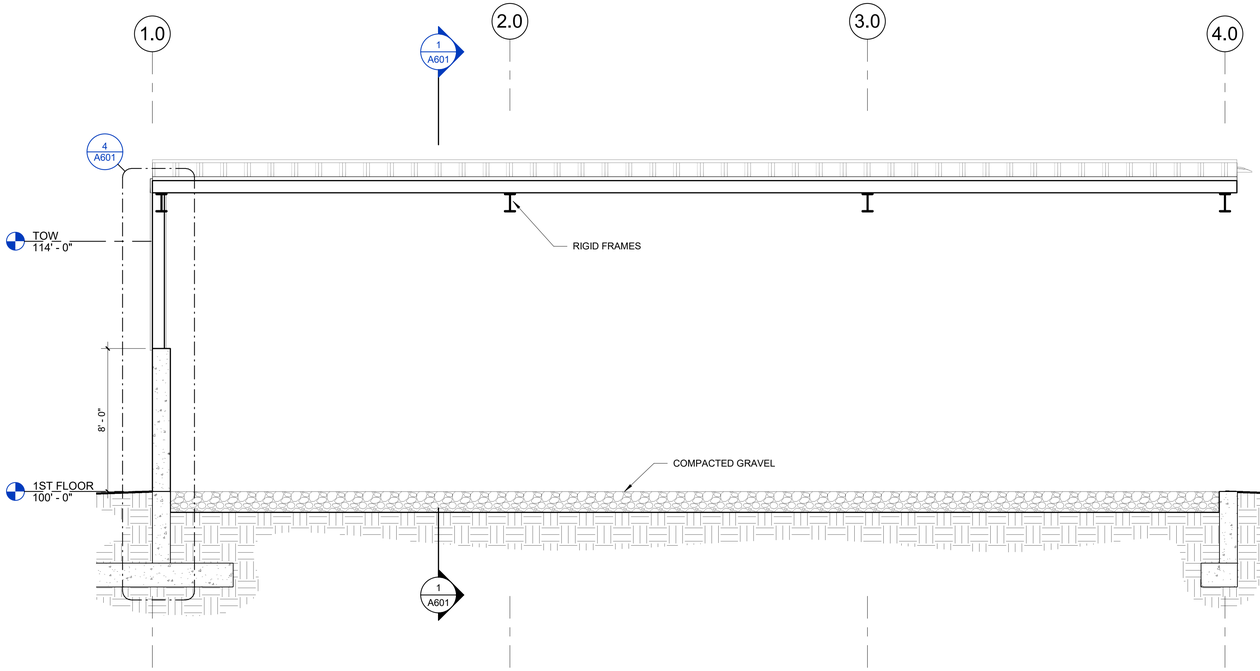


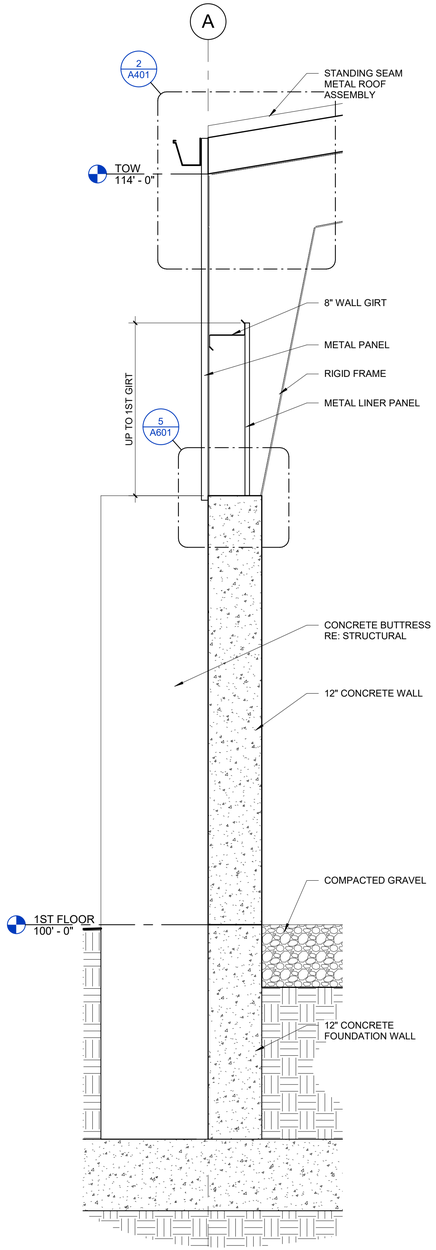
1 A601 **BUILDING SECTION N-S**
SCALE: 1/4" = 1'-0"



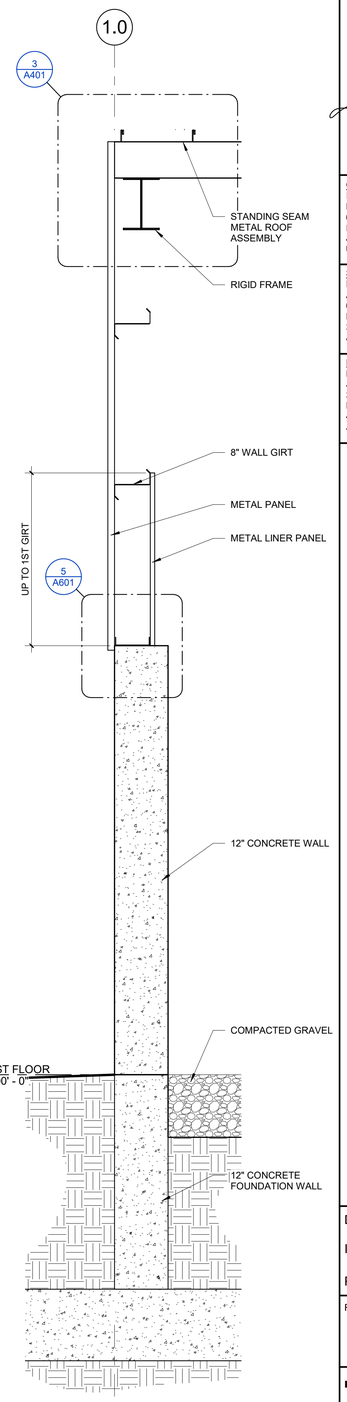
5 A601 **CONCRETE TO METAL WALL DETAIL**
SCALE: 1 1/2" = 1'-0"



2 A601 **BUILDING SECTION E-W**
SCALE: 1/4" = 1'-0"



3 A601 **NORTH & SOUTH WALL SECTION**
SCALE: 3/4" = 1'-0"



4 A601 **WEST WALL SECTION**
SCALE: 3/4" = 1'-0"

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BUILDING SECTIONS

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ELECTRICAL ABBREVIATIONS LEGEND

A, AMP	AMPERES
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMP FUSE
AFC	AVAILABLE FAULT CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AS	AMP SWITCH
ATS	AUTOMATIC TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
BOF	BOTTOM OF FIXTURE
C	RACEWAY/CONDUIT
CB	CIRCUIT BREAKER
CCT	COLOR RENDERING TEMPERATURE
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
C.O.	RACEWAY/CONDUIT ONLY, WITH PULL STRING
COD	CENTER OF DEVICE
CNTRL	CONTROL
CU	COPPER
(D)	EXISTING TO BE DEMOLISHED
DISC	DISCONNECT
DIST	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
EA	EACH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEC	ELECTRIC
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EX, EXIST	EXISTING
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FD	FUSED DISCONNECT
FLR	FLOOR
FO	FIBER OPTIC
FSD	FIRE SMOKE DAMPER RELAY, CONTROLLED BY ASSOCIATED SMOKE DETECTOR AND CIRCUITED BACK TO FACP
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GEC	GROUNDED ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HZ	HERTZ
J-BOX	JUNCTION BOX
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
LCP	LIGHTING CONTROL PANEL
LPW	LUMENS PER WATT
LTG	LIGHTING
LM	LUMENS
LV	LOW VOLTAGE
MAG	MAGNETIC STARTER
MAN	MANUAL
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MH	METAL HALIDE
MIN	MINIMUM
MSS	MOTOR STARTER SWITCH WITH THERMAL OVERLOADS
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFD	NON-FUSED DISCONNECT
NL	NIGHT LIGHT, UN-SWITCHED 24/7 OPERATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
#	NUMBER
OAE	OR APPROVED EQUAL
OC	ON CENTER
OCPD	OVERCURRENT PROTECTIVE DEVICE
OH	OVERHEAD
P	POLE
PB	PUSHBUTTON
PC	PLUMBING CONTRACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
PWR	POWER
(R)	EXISTING TO REMAIN
RCPT	RECEPTACLE
RECEPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RVNR	REDUCED VOLTAGE NON-REVERSING
RVR	REDUCED VOLTAGE REVERSING
SP	SINGLE POLE TOGGLE SWITCH
SPD	SURGE PROTECTIVE DEVICE (TVSS)
SPEC	SPECIFICATION
SPST	SINGLE POLE SINGLE THROW
SSPB	START-STOP PUSHBUTTON
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TELEPHONE BOARD
TC	TIME CLOCK
TD	TIME DELAY
TEL	TELEPHONE
TR	TAMPER RESISTANT
TSP	TWISTED SHIELDED PAIR
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WAO	WORK AREA OUTLET
WP	WEATHERPROOF
W/O	WITHOUT
XFMR	TRANSFORMER
Y	WYE-CONNECTED
Δ	DELTA-CONNECTED
ø	PHASE

ELECTRICAL LIGHTING FIXTURE LEGEND

- SURFACE LED FIXTURE - "a" & "b" DESIGNATES SWITCH
- SURFACE EMERGENCY LED FIXTURE - "a" & "b" DESIGNATES SWITCH
- SURFACE WALL MOUNT LED FIXTURE
- LED STRIP OR INDUSTRIAL, SURFACE OR CHAIN HUNG
- EMERGENCY LED STRIP OR INDUSTRIAL, SURFACE OR CHAIN HUNG

ELECTRICAL LIGHTING CONTROL LEGEND

STANDARD LIGHTING CONTROLS: SWITCHES

TOGGLE SWITCH (MOUNT AT +48", UNO)
"X" INDICATES TYPE:
- BLANK - SINGLE POLE
- 3 - INDICATES THREE-WAY
- 4 - INDICATES FOUR-WAY
- K - INDICATES KEYED SWITCH
- T - INDICATES TIMER
- P - INDICATES PILOT LIGHT
- a - INDICATES SINGLE POLE LIGHTING SWITCH ZONE FOR ZONE a
- b - INDICATES SINGLE POLE LIGHTING SWITCH ZONE FOR ZONE b
- ab - INDICATES LIGHTING SWITCHES WITH MULTIPLE ZONES

ELECTRICAL ONE-LINE LEGEND

- CT AND CUSTOMER POWER METER
- MOTOR
- UTILITY ELECTRIC METER AND BASE (BASE BY CUSTOMER)
- LIGHTNING ARRESTER, TYPE 1 SPD, MOUNTED ON EXTERIOR OF MAIN SWITCHGEAR (SQUARE D. SDSA SERIES, OAE)
- EQUIPMENT TOGGLE DISCONNECT SWITCH
  "X" INDICATES TYPE:
  - F - FUSTAT
  - M - MOTOR STARTER SWITCH W/ THERMAL OVERLOADS
- FIXED MOUNT LV BREAKER
- FUSED SWITCH ("XXAS/XXAF" - SW AND FUSE AMP RATING)
- DISCONNECT SWITCH ("XXAS" = SWITCH AMP RATING)
- FUSED DISCONNECT SWITCH ("XXAS/XXAF" = SW AND FUSE AMP RATING)
- SWITCHBOARD OR PANELBOARD; NAME, VOLTAGE, PHASE, NUMBER OF WIRES WHEN INDICATED

ELECTRICAL POWER LEGEND

- D-1 X — PANEL AND CIRCUIT DESIGNATION ARE NEXT TO EACH DEVICE (PANEL NAME - CIRCUIT NUMBER). MINIMUM BRANCH CIRCUIT WIRE SIZE IS #12, UNO. A SINGLE INSULATED GREEN GROUND CONDUCTOR SHALL BE PROVIDED WITH EACH HOME RUN. PROVIDE A SEPARATE NEUTRAL FOR EACH CIRCUIT. HOME RUNS SHALL HAVE NO MORE THAN THREE CIRCUITS. LINE VOLTAGE AND LOW VOLTAGE WIRING IS NOT SHOWN ON PLANS.
  "X" INDICATES TYPE:
  - C - AUTOMATIC CONTROL
  - GFI - GROUND FAULT INTERRUPTER
  - WP - WEATHERPROOF WHILE-IN-USE COVER
  - U - PROVIDE WITH (2) USB PORTS
  - TR - TAMPER RESISTANT
- SIMPLEX RECEPTACLE - CEILING MOUNT, WALL MOUNT (+18", UNO)
- DUPLEX RECEPTACLE - CEILING MOUNT, WALL MOUNT (+18", UNO)
- QUADRUPLEX RECEPTACLE - CEILING MOUNT, WALL MOUNT (+18", UNO)
- JUNCTION BOX
- DROP-DOWN RECEPTACLE
- PANELBOARD OR LOAD CENTER
- SPECIAL PURPOSE RECEPTACLE (MOUNT AT +18", UNO)
  "X" INDICATES TYPE:
  - A - NEMA 5-20R, #12 CU; B - NEMA 5-30R, #10 CU;
  - C - NEMA 5-50R, #6 CU; D - NEMA 6-20R, #12 CU;
  - E - NEMA 6-30R, #10 CU; F - NEMA 6-50R, #6 CU;
  - G - NEMA 14-20R, #12 CU; H - NEMA 14-30R, #10 CU;
  - I - NEMA 14-50R, #6 CU*

  * +4" AFF FOR RANGE
- PUSHBUTTON (MOUNT AT +48", UNO)
  "X" INDICATES TYPE:
  - EPO - EMERGENCY POWER OFF
  - ODO - OVERHEAD DOOR OPERATOR (DEVICE BY OTHERS)
- RACEWAY CONCEALED IN WALL, FLOOR, OR CEILING IN FINISHED SPACES, EXPOSED IN UNFINISHED SPACES
- RACEWAY BELOW FLOOR OR BELOW GRADE
- RACEWAY STUB-OUT WITH CAPPED END
- RACEWAY STUB-OUT WITH BRUSHED END
- GROUNDING BUS

ABBREVIATIONS AND SYMBOLS GENERAL NOTES

A. THE ABBREVIATIONS ON THIS SHEET COMPRISE A STANDARD LIST; NOT ALL ABBREVIATIONS APPEAR ON THIS PROJECT.
B. THE SYMBOLS ON THIS SHEET COMPRISE A STANDARD LIST; NOT ALL SYMBOLS APPEAR ON THIS PROJECT.
C. ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS, MAKING ADJUSTMENTS AS REQUIRED TO AVOID INTERFERENCE WITH EQUIPMENT SUCH AS BASEBOARD FIN-TUBE, CABINET UNIT HEATERS, ETC. ARCHITECT/ENGINEER SHALL BE NOTIFIED OF ALL SUCH HEIGHT ADJUSTMENTS. MOUNTING HEIGHTS INDICATED ON ARCHITECTURAL WALL ELEVATIONS OR AS NOTED SPECIFICALLY ON THE DRAWINGS OR IN THE SPECIFICATIONS SHALL TAKE PRECEDENCE OVER MOUNTING HEIGHTS LISTED.

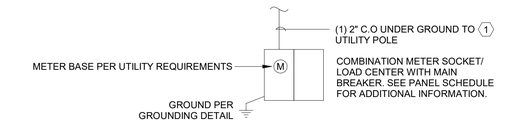
ELECTRICAL PROJECT GENERAL NOTES

A. PRIOR TO BID CONTRACTOR SHALL VISIT THE SITE. NOT ALL WORK REQUIRED TO COMPLETE THE PROJECT IS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH ALL THE WORK REQUIRED TO COMPLETE THE PROJECT IN ADDITION TO THE LOCAL CONDITIONS AND INCLUDE SAID WORK IN THE BID.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL ELECTRICAL SERVICE WORK WITH UTILITY. OWNER PAYS ALL FEES. CONTRACTOR DOES ALL SCHEDULING AND COORDINATION OF WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL SCHEDULES ARE MET.
C. GENERAL WORK PRACTICES FOR ELECTRICAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NECA 1, "STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING." THIS PUBLICATION IS AVAILABLE FROM NECA BY TELEPHONE AT 301-657-3110 OR ON-LINE AT WWW.NECANET.ORG.
D. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE WITH MECHANICAL FOR PLENUM SPACES AND PROVIDE PLENUM RATED CABLES WHERE REQUIRED FOR LIGHTING CONTROL, DATA, FIRE ALARM AND ALL OTHER L.V. SYSTEMS NOT INSTALLED IN CONDUIT. VERIFY CONDUIT REQUIREMENTS ON DRAWINGS AND SPECIFICATIONS.
E. FIRE-RESISTANCE: PROVIDE A MINIMUM HORIZONTAL DISTANCE OF 24" BETWEEN OUTLET BOXES LOCATED ON OPPOSITE SIDES OF FIRE-RESISTANCE RATED WALLS. WHERE THIS IS NOT POSSIBLE INSTALL UL LISTED PUTTY PADS ON ALL OUTLET BOXES NOT MEETING THE 24" SEPARATION. PROVIDE A UL LISTED THROUGH -PENETRATION FIRESTOP FOR PENETRATIONS OF FIRE-RESISTANCE RATED ASSEMBLIES.
F. CONDUCTORS ARE SIZED PER THE 75 DEGREE C RATING COLUMN OF NEC TABLE 310.16. IF THE TERMINAL USED FOR A TERMINATION OF A PARTICULAR CONDUCTOR IS NOT MARKED, OR THE TERMINAL IS MARKED FOR 60 DEGREE C CONDUCTORS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EITHER ADJUST THE AMPACITY OF THE CONDUCTOR TO MATCH THE 60 DEGREE COLUMN OF TABLE 310.16, OR REPLACE THE TERMINAL WITH ONE RATED FOR AT LEAST 75 DEGREES C.
G. BASED ON ACTUAL HOMERUN LENGTHS REQUIRED IN THE FIELD, THE CONTRACTOR SHALL CALCULATE AND INCREASE THE WIRE SIZES AS REQUIRED TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3%. FOR 20A BRANCH CIRCUITS THE MINIMUM CONDUCTOR SIZES SHALL BE AS FOLLOWS: #10 AWG CU FOR RUNS BETWEEN 100 AND 200 LINEAR FEET, #8 AWG CU FOR RUNS BETWEEN 200 AND 325 LINEAR FEET, AND AS CALCULATED BY THE CONTRACTOR FOR CIRCUITS EXTENDING BEYOND 325 LINEAR FEET. IN ALL CASES WHERE WIRE SIZES INCREASE, THE CONTRACTOR SHALL PROVIDE LARGER CONDUITS AS REQUIRED.
H. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V BRANCH CIRCUIT.

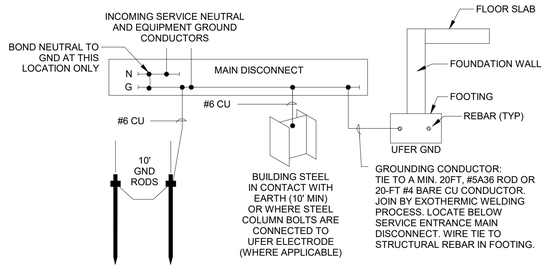
ELECTRICAL SHEET INDEX

KEY NOTES:

1. CONFIRM ALL REQUIREMENTS WITH LOCAL ELECTRICAL UTILITY FOR CONDUITS, & LOCATIONS PRIOR TO WORK STARTING.



1 ONE LINE DIAGRAM
E001 NOT TO SCALE



2 GROUNDING AND BONDING RISER DIAGRAM
E001 NOT TO SCALE

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Issue CONSTRUCTION DOCUMENTS
Project Number 2022-36.1
Revisions

ELECTRICAL COVER SHEET

E001

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260010 - GENERAL REQUIREMENTS OF ELECTRICAL

A. SUMMARY
1. THE REQUIREMENTS LISTED IN THIS SECTION ARE SUPPLEMENTAL TO THE DIVISION 01 GENERAL REQUIREMENTS.
2. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL AND LOW-VOLTAGE CONTRACTORS TO EXAMINE AND REFER TO ALL ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND LANDSCAPE DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION CONDITIONS WHICH MAY AFFECT THE SCOPE OF ELECTRICAL, COMMUNICATIONS, ELECTRONIC SAFETY AND SECURITY WORK. INSPECT THE BUILDING SITE AND EXISTING FACILITIES FOR VERIFICATION OF PRESENT CONDITIONS. MAKE PROPER PROVISIONS FOR THESE CONDITIONS IN PERFORMANCE OF THE WORK AND COST THEREOF.
3. ELECTRICAL, COMMUNICATIONS, ELECTRONIC SAFETY AND SECURITY WORK FOR THIS PROJECT SHALL INCLUDE ALL ITEMS, ARTICLES, MATERIALS AND THE ASSOCIATED LABOR MENTIONED, SCHEDULES OR SHOWN IN THESE SPECIFICATIONS AND IN THE ACCOMPANYING DRAWINGS.
4. FURNISH AND INSTALL ALL EQUIPMENT, MATERIALS AND ANY REQUIRED INCIDENTAL ITEMS REQUIRED BY GOOD PRACTICE TO COMPLETE THE SYSTEMS DESCRIBED HEREIN.
5. REFER TO DIVISION 01 FOR ALL LISTED ALTERNATES AND PROVIDE SEPARATE PRICING AND WORK AS INDICATED IN DIVISION 01 AND CONTRACT DOCUMENTS.

B. DEFINITIONS - THROUGHOUT CONTRACT DOCUMENTS THESE WORDS AND PHRASES ARE USED:
1. CONTRACT DOCUMENTS - ALL DRAWINGS, SPECIFICATIONS, ADDENDA AND CHANGE ORDERS THAT DOCUMENT WORK TO BE DONE.
2. DEMOLITION – CAREFULLY DISCONNECT AND REMOVE ITEMS. ALL REASONABLE CAUTION SHALL BE TAKEN TO AVOID DAMAGING REMOVED EQUIPMENT AND TO RETAIN ITS OPERABILITY.
3. REMOVE BACK TO SOURCE - REMOVE ALL CONDUIT AND WIRE BACK TO PANELBOARD OR LAST LIVE DEVICE.
4. EQUIVALENT OR EQUAL - PRODUCT OF LIKE TYPE AND FUNCTION THAT COMPLIES WITH ALL APPLICABLE PROVISIONS OF DRAWINGS AND SPECIFICATIONS AND WHICH HAS BEEN APPROVED AS SUBSTITUTE FOR SPECIFIED ITEM.
5. FURNISH - PURCHASE MATERIAL AS SHOWN AND SPECIFIED, AND PLACE MATERIAL TO APPROVED LOCATION ON SITE OR ELSEWHERE AS NOTED OR AGREED UPON.
6. INSTALL - SET IN PLACE AND CONNECT, READY FOR USE AND IN COMPLETE AND PROPERLY OPERATING FINISHED CONDITION.
7. PROVIDE - FURNISH AND INSTALL WITH ALL PRODUCTS, LABOR, SUB-CONTRACTS, AND APPURTENANCES REQUIRED FOR A COMPLETE AND PROPERLY OPERATING, FINISHED CONDITION.
8. ROUGH-IN - PROVIDE CONDUIT RACEWAY SYSTEM WITH JUNCTION BOXES, FITTINGS, STRAPS, BUSHINGS, ETC., FOR FUTURE INSTALLATION OF WIRING, DEVICES, DISCONNECTS AND BREAKERS. PROVISION SHALL BE MADE IN PANELBOARD (HARDWARE, ETC.) FOR FUTURE INSTALLATION OF BREAKERS.
9. SERVICEABLE - ARRANGED SO THAT COMPONENT OR PRODUCT IN QUESTION MAY BE PROPERLY REMOVED AND REPLACED WITHOUT DISASSEMBLY, DESTRUCTION OR DAMAGE TO SURROUNDING INSTALLATION.

C. CODES, STANDARDS AND REGULATIONS
1. CODES - PERFORM ALL WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES; INCLUDING, BUT NOT LIMITED TO LATEST LEGALLY ENACTED EDITIONS OF FOLLOWING CODES:
   a. NFPA 70, NATIONAL ELECTRIC CODE – NEC
   b. NFPA 72, NATIONAL FIRE ALARM CODE
   c. ANSI-C2, NATIONAL ELECTRICAL SAFETY CODE – NESC
   d. INTERNATIONAL BUILDING CODE – IBC
   e. INTERNATIONAL FIRE CODE – IFC
   f. INTERNATIONAL ENERGY CONSERVATION CODE – IECC
2. STANDARDS - REFERENCE TO STANDARDS INFERS THAT INSTALLATION, EQUIPMENT AND MATERIAL SHALL BE WITHIN LIMITS FOR WHICH IT WAS DESIGNED, TESTED AND APPROVED, IN CONFORMANCE WITH CURRENT PUBLICATIONS AND STANDARDS OF FOLLOWING ORGANIZATIONS:
   a. AMERICAN NATIONAL STANDARDS INSTITUTE – ANSI
   b. AMERICAN SOCIETY FOR TESTING AND MATERIALS – ASTM
   c. AMERICAN SOCIETY OF HEATING REFRIGERATING AND AIR CONDITIONING ENGINEERS – ASHRAE (STANDARD 90-75)
   d. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS – IEEE
   e. INSULATED CABLE ENGINEERS ASSOCIATION – ICEA
   f. NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION – NECA
   g. NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION – NEMA
   h. NATIONAL FIRE PROTECTION ASSOCIATION – NFPA
   i. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION – OSHA
   j. UNDERWRITERS' LABORATORIES, INC. – UL
   k. RULES AND REGULATIONS OF THE STATE/LOCAL FIRE MARSHAL
   l. STANDARDS AND REQUIREMENT OF THE SERVING UTILITIES
   m. STATE AND LOCAL ORDINANCES
3. REGULATIONS - DESIGN HAS BEEN PERFORMED IN ACCORDANCE WITH APPLICABLE REGULATIONS AND GUIDELINES NOTED BELOW. CONTRACTOR SHALL CAREFULLY APPLY THESE REGULATIONS AND BRING ANY DISCREPANCIES TO IMMEDIATE ATTENTION OF ARCHITECT/ENGINEER.
   a. AMERICANS WITH DISABILITIES ACT – ADA

D. FEES AND PERMITS
1. ELECTRICAL CONTRACTOR SHALL PAY FOR ALL PERMITS OR FEES IN CONNECTION WITH ELECTRICAL WORK. FEES SHALL INCLUDE ANY OR ALL USER FEES, GOVERNMENT FEES, SYSTEM DEVELOPMENT FEES, CONNECTION FEES OR OTHER FEES THAT ARE REQUIRED TO BE PAID BEFORE SYSTEMS CAN BE CONNECTED OR USED.
2. SCHEDULE ALL REQUIRED ELECTRICAL INSPECTIONS WITH LOCAL ELECTRICAL INSPECTOR. NOTIFY ENGINEER OF ALL ITEMS OF DISCREPANCY NOTED BY ELECTRICAL INSPECTOR IF THOSE ITEMS AFFECT COST OR FUNCTION OF SYSTEM, OR IF THEY CONFLICT WITH ELECTRICAL DRAWINGS AND SPECIFICATIONS.
3. ALL UTILITY COST AND FEES FROM THE UTILITY WORK SHALL BE THE RESPONSIBILITY OF THE OWNER. CONTRACTOR TO COORDINATE ALL UTILITY REQUIREMENTS, STANDARDS AND RESPONSIBILITIES WITH SERVING UTILITY FOR A COMPLETE SCOPE OF WORK PRIOR TO BID.
4. DELIVER ALL INSPECTION CERTIFICATES TO ARCHITECT/ENGINEER PRIOR TO FINAL ACCEPTANCE OF WORK.

E. INTENT OF SPECIFICATIONS AND DRAWINGS
1. PLANS AND SPECIFICATIONS ARE INTENDED TO RESULT IN COMPLETE ELECTRICAL INSTALLATION IN FULL COMPLIANCE WITH ALL APPLICABLE CODES, STANDARDS AND ORDINANCES.
2. PLANS AND SPECIFICATIONS ARE TO SUPPLEMENT EACH OTHER AND ANY DETAILS CONTAINED IN ONE SHALL BE INCLUDED AS IF CONTAINED IN BOTH.
3. ELECTRICAL DRAWINGS SHALL SERVE AS WORKING DRAWINGS, BUT ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE IF ANY DIMENSIONAL DISCREPANCIES EXIST.
4. DRAWINGS ARE PARTLY DIAGRAMMATIC AND DO NOT SHOW ROUTING OF CONDUITS, EXACT LOCATION OF PRODUCTS, OR INSTALLATION FEATURES IN EXACT DETAIL. LOCATIONS OF DEVICES, FIXTURES AND EQUIPMENT ARE APPROXIMATE UNLESS DIMENSIONED.
5. RISER DIAGRAMS AND CONTROL SCHEMATICS ARE NOT TO SCALE AND DO NOT SHOW PHYSICAL ARRANGEMENT OF EQUIPMENT. DO NOT USE RISER DIAGRAMS OR SCHEMATICS TO OBTAIN LINEAL CONDUIT AND CABLING DISTANCES.
6. ITEMS ARE SHOWN ON DRAWINGS IN LOCATIONS TO MINIMIZE INTERFERENCE WITH OTHER EQUIPMENT, STRUCTURAL MEMBERS, ETC. EXACT FINISH LOCATIONS ARE NOT INDICATED, HOWEVER, AND ALL WORK SHALL BE DONE TO AVOID INTERFERENCE, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.
7. IN EVENT THAT DISCREPANCIES OF ANY KIND EXIST OR REQUIRED ITEMS/DETAILS HAVE BEEN OMITTED, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER IN WRITING OF SUCH DISCREPANCY OR OMISSION AT LEAST TEN DAYS PRIOR TO BID DATE. FAILURE TO DO SO SHALL BE CONSTRUED AS WILLINGNESS OF CONTRACTOR TO SUPPLY ALL NECESSARY MATERIALS AND LABOR REQUIRED FOR PROPER COMPLETION OF WORK.

F. CONTRACTOR'S RESPONSIBILITY - CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF COMPLETE AND FUNCTIONAL PIECE OF WORK IN ACCORDANCE WITH TRUE INTENT OF CONTRACT DOCUMENTS. PROVIDE ALL INCIDENTAL ITEMS REQUIRED FOR COMPLETE INSTALLATION AND SATISFACTORY OPERATION OF ALL EQUIPMENT, WHETHER OR NOT SPECIFICALLY NOTED IN CONTRACT DOCUMENTS.
1. QUALIFICATIONS
   a. CONTRACTOR SHALL EMPLOY ON THIS PROJECT, CAPABLE, EXPERIENCED AND RELIABLE FOREMAN AND SUCH SKILLED WORKMEN AS MAY BE REQUIRED FOR VARIOUS CLASSES OF WORK TO BE PERFORMED.
   b. WHERE SPECIAL SKILLS AND CERTIFICATION ARE REQUIRED, CONTRACTOR SHALL ENSURE THAT WORK IS PERFORMED BY INDIVIDUALS WITH REQUIRED EXPERIENCE, SKILL AND CERTIFICATION.
   c. IF, IN ENGINEER'S OPINION, CONTRACTOR'S EMPLOYEES DO NOT POSSESS NECESSARY QUALIFICATIONS TO PERFORM SPECIALTY WORK, CONTRACTOR WILL BE REQUIRED TO OBTAIN SERVICES OF WORKMEN WHO ARE APPROVED BY MANUFACTURER AND CERTIFIED BY APPLICABLE AGENCY OR GROUP. THESE WORKMEN, IF REQUIRED, SHALL BE PROVIDED AT NO ADDITIONAL EXPENSE.
   d. REFER TO OTHER SPECIFICATION SECTIONS FOR ADDITIONAL REQUIRED CONTRACTOR QUALIFICATIONS AND CERTIFICATION.
2. LICENSING AND CERTIFICATION - ALL DIVISION 26 WORK SHALL BE ACCOMPLISHED BY ELECTRICIANS, LICENSED BY STATE IN WHICH WORK IS BEING DONE, CERTIFIED AS REQUIRED, AND SKILLED IN THEIR CRAFT. ELECTRICIAN MAY ELECT TO HIRE SUBCONTRACTORS FOR PORTIONS OF WORK (SUCH AS SYSTEMS DESCRIBED IN DIVISIONS 27 AND 28) WHO ARE NOT LICENSED ELECTRICIANS, BUT HAVE REQUIRED CERTIFICATES AND ARE LICENSED IN THEIR DISCIPLINE BY STATE IN WHICH WORK IS BEING DONE.
3. COORDINATION
   a. CONTRACTOR SHALL CONSULT ALL CONTRACT DOCUMENTS, SHOP DRAWINGS OF OTHER TRADES, AND ACTUAL BUILDING DIMENSIONS TO PREDETERMINE THAT HIS WORK AND EQUIPMENT WILL FIT AS PLANNED. DO NOT SCALE DRAWINGS FOR FABRICATION. NO EXTRA PAYMENT WILL BE ISSUED FOR MATERIALS OR ITEMS WHICH DO NOT FIT BECAUSE OF CONTRACTOR'S FAILURE TO VERIFY AS-BUILT BUILDING DIMENSIONS.
   b. CONTRACTOR SHALL CHECK LOCATION OF FIXTURES, OUTLETS, EQUIPMENT, CONDUIT, ETC., TO DETERMINE THEY CLEAR ALL OPENINGS, STRUCTURAL MEMBERS, PIPING, DUCTS AND MISCELLANEOUS EQUIPMENT HAVING FIXED LOCATIONS.
   c. CHANGES IN LOCATION OF ELECTRICAL WORK, NECESSARY DUE TO OBSTACLES OR INSTALLATION OF OTHER TRADES SHOWN ON CONTRACT DOCUMENTS, SHALL BE MADE BY ELECTRICAL CONTRACTOR AT NO EXTRA COST.
   d. CONTRACTOR SHALL COORDINATE WITH PLUMBING AND MECHANICAL CONTRACTORS TO AVOID INSTALLATION OF PIPING AND DUCTWORK ABOVE OR BELOW PANELBOARDS IN VIOLATION OF NATIONAL ELECTRICAL CODE.
   e. LAY OUT ALL WORK IN ADVANCE AND AVOID CONFLICT WITH OTHER WORK IN PROGRESS. PHYSICAL DIMENSIONS SHALL BE DETERMINED FROM ARCHITECTURAL AND STRUCTURAL PLANS. VERIFY LOCATIONS FOR JUNCTION BOXES, DISCONNECT SWITCHES, STUB-UPS, ETC., FOR CONNECTION TO EQUIPMENT FURNISHED BY OTHERS, OR IN OTHER DIVISIONS OF THIS WORK.
   f. CONTRACTOR SHALL COORDINATE AND PLAN WORK TO PROCEED WITH WORK OF OTHER TRADES.
   g. CONTRACTOR SHALL INFORM GENERAL CONTRACTOR OF ALL REQUIRED OPENINGS IN BUILDING STRUCTURE FOR INSTALLATION OF ELECTRICAL EQUIPMENT.
   h. CONTRACTOR SHALL CHECK DIMENSIONS OF ALL ELECTRICAL EQUIPMENT INSTALLED, PROVIDED BY HIMSELF OR BY OTHERS, SO CORRECT CLEARANCES AND CONNECTIONS CAN BE MADE.
   i. CONSULTING ALL CONTRACT DOCUMENTS AND SHOP DRAWINGS OF OTHER TRADES, CONTRACTOR SHALL DETERMINE WHERE ELECTRICAL JUNCTION/PULL BOXES AND EQUIPMENT CAN BE INSTALLED TO MAINTAIN PROPER ACCESSIBILITY. WHERE ACCESSIBILITY CANNOT BE MAINTAINED BY JUDICIOUS PLACEMENT OF BOXES, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE, FABRICATE, INSTALL, ADJUST, PAINT, ETC. ACCESS DOORS THROUGH NON-ACCESSIBLE FLOOR, WALL, AND CEILING FINISHES TO ALLOW ACCESS TO ALL ELECTRICAL JUNCTION AND PULL BOXES, ELECTRICAL DEVICES, ELECTRICAL EQUIPMENT, ETC. AT ALL REQUIRED LOCATIONS WHETHER SHOWN OR NOT SHOWN ON PLANS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR DETERMINING SIZE AND LOCATION OF THE ACCESS DOORS. REPORT ANY CONFLICTS TO ARCHITECT/ENGINEER.

G. REVIEW - ALL WORK AND MATERIAL IS SUBJECT TO REVIEW AT ANY TIME BY THE ARCHITECT/ENGINEER OR HIS REPRESENTATIVE. IF THE ARCHITECT/ENGINEER OR HIS REPRESENTATIVE FINDS MATERIAL THAT DOES NOT CONFORM TO THESE SPECIFICATIONS OR THAT IS NOT PROPERLY INSTALLED OR FINISHED, CORRECT THE DEFICIENCIES IN A MANNER SATISFACTORY TO THE ARCHITECT/ENGINEER AT THE CONTRACTOR'S EXPENSE.

H. TEMPORARY FACILITIES
1. ELECTRICAL UTILITIES
   a. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL POWER TO THE CONSTRUCTION SITE AS DIRECTED BY THE GENERAL CONTRACTOR. NO CONNECTIONS TO THE OWNER'S SYSTEM SHALL BE ALLOWED WITHOUT OWNER'S WRITTEN APPROVAL. PROVIDE A SEPARATE UTILITY SERVICE AS REQUIRED.
   b. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL POWER TO JOB TRAILERS AS DIRECTED BY THE GENERAL CONTRACTOR.
   c. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY COMMUNICATIONS TO JOB TRAILERS AS DIRECTED BY THE GENERAL CONTRACTOR.
   d. ALL COSTS ASSOCIATED WITH TEMPORARY POWER, COMMUNICATIONS AND UTILITY COST SHALL BE PAID BY TO THE GENERAL CONTRACTOR.
   e. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION LIGHTING AS DIRECTED BY THE GENERAL CONTRACTOR TO PROVIDE A SAFE WORKING ENVIRONMENT.
   f. ALL TEMPORARY SERVICES ARE TO BE REMOVED IN THEIR ENTIRETY PRIOR TO OCCUPANCY AS DIRECTED BY THE GENERAL CONTRACTOR.
2. OFFICES
   a. THE ELECTRICAL CONTRACTOR MUST HAVE THE PERMISSION OF THE OWNER AND GENERAL CONTRACTOR OR CONSTRUCTION MANAGER TO INSTALL A TEMPORARY OFFICE/JOB TRAILER ON THE PROJECT SITE.
   b. CONTRACTOR SHALL COMPLETELY REMOVE HIS TEMPORARY INSTALLATIONS WHEN NO LONGER NEEDED AND THE PREMISES SHALL BE COMPLETELY CLEAN, DISINFECTED, PATCHED, AND REFINISHED TO MATCH ADJACENT AREAS.
3. LADDERS AND SCAFFOLDS - THE ELECTRICAL AND LOW-VOLTAGE CONTRACTORS SHALL PROVIDE THEIR OWN LADDERS, SCAFFOLDS, ETC. OF SUBSTANTIAL CONSTRUCTION FOR ACCESS TO THEIR WORK IN VARIOUS PORTIONS OF THE BUILDING AS MAY BE REQUIRED. WHEN NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR.
4. PROTECTION DEVICES - THE ELECTRICAL AND LOW-VOLTAGE CONTRACTORS SHALL PROVIDE AND MAINTAIN THEIR OWN NECESSARY BARRICADES, FENCES, SIGNAL LIGHTS, ETC., REQUIRED BY ALL GOVERNING AUTHORITIES OR SHOWN ON THE DRAWINGS. WHEN NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR.
5. TEMPORARY FIRE PROTECTION - THE ELECTRICAL AND LOW-VOLTAGE CONTRACTORS SHALL PROVIDE ALL NECESSARY FIRST AID HAND FIRE EXTINGUISHERS FOR CLASS A, B, C AND SPECIAL HAZARDS AS MAY EXIST IN HIS OWN WORK AREA ONLY IN ACCORDANCE WITH GOOD AND SAFE PRACTICE AND AS REQUIRED BY JURISDICTIONAL SAFETY AUTHORITY.

I. RECORD DOCUMENTS (AS-BUILT DRAWINGS)
1. SEE REQUIREMENTS REGARDING RECORD DOCUMENTS IN GENERAL DIVISION AND DIVISION 1.
2. AT BEGINNING OF WORK, CONTRACTOR SHALL SET ASIDE ONE COMPLETE SET OF DRAWINGS WHICH SHALL BE MAINTAINED AS COMPLETE "AS-BUILT" SET. DRAWINGS SHALL BE UPDATED DAILY IN NEAT AND LEGIBLE MANNER AND SHALL NOT BE USED FOR ANY OTHER PURPOSE. DRAWINGS, SPECIFICATION, ADDENDA, CHANGE ORDERS, ETC. SHALL BE MAINTAINED AT JOB SITE AND AVAILABLE FOR REVIEW AT ANY TIME.
3. SHOW DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK THAT WILL BECOME PERMANENTLY CONCEALED, CAST IN CONCRETE OR BURIED UNDERGROUND.
4. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO SYSTEMS SHOWN.
5. SHOW PROVISIONS FOR FUTURE CONNECTION, REFERENCED TO BUILDING LINES OR APPROVED BENCH MARKS.
6. PROVIDE WIRING DIAGRAMS FOR ALL INDIVIDUAL COMMUNICATIONS SYSTEMS AS INSTALLED. IDENTIFY ALL COMPONENTS AND SHOW ALL WIRE AND TERMINAL NUMBERS AND CONNECTIONS.
7. AT COMPLETION OF PROJECT, DELIVER DRAWINGS TO ENGINEER FOR REVIEW.

J. WARRANTY
1. THE CONTRACTOR SHALL GUARANTEE THAT ALL MATERIALS AND LABOR INSTALLED ARE NEW AND OF FIRST QUALITY AND THAT ANY MATERIAL OR LABOR FOUND DEFECTIVE SHALL BE REPLACED WITHOUT COST TO THE OWNER WITHIN ONE (1) YEAR AFTER SUBSTANTIAL COMPLETION OF THE CONTRACT OR ONE (1) FULL SEASON OF HEATING AND COOLING OPERATION, WHICHEVER IS THE GREATER. THE GUARANTEE SHALL LIST THE DATE OF THE BEGINNING OF THE ONE (1) YEAR PERIOD, WHICH SHALL BE THE DATE THAT THE SUBSTANTIAL COMPLETION CERTIFICATE IS ISSUED.
2. ANY DAMAGE TO THE BUILDING, CAUSED BY DEFECTIVE WORK OR MATERIAL OF THE CONTRACTOR WITHIN THE ABOVE-MENTIONED PERIOD, SHALL BE SATISFACTORILY REPAIRED WITHOUT COST TO THE OWNER.
3. THE GUARANTEE DOES NOT INCLUDE MAINTENANCE OF EQUIPMENT. THE OWNER SHALL ACCEPT FULL RESPONSIBILITY FOR PROPER OPERATION AND MAINTENANCE OF EQUIPMENT IMMEDIATELY UPON SUBSTANTIAL COMPLETION AND OCCUPANCY OF THE BUILDING.
4. FINAL ACCEPTANCE BY THE OWNER WILL NOT OCCUR UNTIL ALL OPERATING INSTRUCTIONS ARE MOUNTED IN EQUIPMENT ROOMS AND OPERATING PERSONNEL THOROUGHLY INDOCTRINATED IN THE OPERATION OF ALL ELECTRICAL EQUIPMENT BY THE CONTRACTOR.
5. NO EQUIPMENT INSTALLED AS PART OF THIS PROJECT SHALL BE USED FOR TEMPORARY HEAT DURING CONSTRUCTION.

K. MATERIALS AND EQUIPMENT
1. MANUFACTURER'S TRADE NAMES AND CATALOG NUMBERS LISTED ARE INTENDED TO INDICATE THE QUALITY OF EQUIPMENT OR MATERIALS DESIRED. MANUFACTURERS NOT LISTED IN THE SPECIFICATION WILL BE CONSIDERED SUBSTITUTIONS AND MUST HAVE PRIOR APPROVAL.
2. SEE DIVISION 01 FOR SUBSTITUTIONS PROCEDURES. REQUESTS FOR SUBSTITUTION ARE TO BE SUBMITTED SUFFICIENTLY AHEAD OF THE DEADLINE, TO GIVE AMPLE TIME FOR EXAMINATION. PRIOR APPROVAL REQUEST FOR SUBSTITUTION MUST INDICATE THE SPECIFIC ITEM OR ITEMS TO BE FURNISHED IN LIEU OF THOSE SCHEDULED, TOGETHER WITH COMPLETE TECHNICAL AND COMPARATIVE DATA ON SCHEDULED ITEMS AND ITEMS PROPOSED FOR SUBSTITUTION.
3. IF THE ENGINEER APPROVES ANY PROPOSED SUBSTITUTION, THE APPROVED PRODUCT WILL BE LISTED IN AN ADDENDUM. BIDDERS SHALL NOT RELY ON APPROVAL MADE IN ANY OTHER MANNER.
4. ELECTRICAL EQUIPMENT MAY BE INSTALLED WITH MANUFACTURER'S STANDARD FINISH AND COLOR EXCEPT WHERE SPECIFIC COLOR, FINISH OR CHOICE IS INDICATED. IF THE MANUFACTURER HAS NO STANDARD FINISH, EQUIPMENT SHALL HAVE A PRIME COAT AND TWO FINISH COATS OF GRAY ENAMEL.
5. HIGH ALTITUDE OPERATION: CAPACITY OF ALL EQUIPMENT IS TO BE SIZED AND MANUFACTURED TO PERFORM AT THE ELEVATION OF THE PROJECT SITE. IF NOT SPECIFICALLY INDICATED IN THE EQUIPMENT SCHEDULE OR IN THE SPECIFICATIONS PROVIDE ALL REQUIRED ACCESSORIES AND EQUIPMENT FOR PROPER OPERATION AT ELEVATION OF THE PROJECT SITE.
6. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR MATERIALS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PROTECTION OF MATERIALS AND EQUIPMENT OF OTHERS FROM DAMAGE AS A RESULT OF HIS WORK.
7. MANUFACTURED MATERIAL AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED AS DIRECTED BY MANUFACTURER UNLESS HEREIN SPECIFIED TO THE CONTRARY.
8. THIS CONTRACTOR SHALL MAKE THE REQUIRED ARRANGEMENT WITH GENERAL CONTRACTOR OR CONSTRUCTION MANAGER FOR THE INTRODUCTION INTO THE BUILDING OF EQUIPMENT TOO LARGE TO PASS THROUGH FINISHED OPENINGS.
9. STORE MATERIALS AND EQUIPMENT INDOORS AT THE JOB SITE OR, IF THIS IS NOT POSSIBLE, STORE ON RAISED PLATFORMS AND PROTECT FROM THE WEATHER BY MEANS OF WATERPROOF COVERS. COVERINGS SHALL PERMIT CIRCULATION OF AIR AROUND THE MATERIALS TO PREVENT CONDENSATION OF MOISTURE. SCREEN OR CAP OPENINGS IN EQUIPMENT TO PREVENT THE ENTRY OF VERMIN.

L. SUBSTITUTION OF MATERIALS - WHERE SUBSTITUTED EQUIPMENT REQUIRES STRUCTURAL, ARCHITECTURAL, MECHANICAL, PLUMBING OR ELECTRICAL WORK THAT DIFFERS FROM BASIC DESIGN, COST OF ALL CHANGES, INCLUDING RE-DESIGN, SHALL BE RESPONSIBILITY OF CONTRACTOR USING SUBSTITUTION.
1. APPROVED MANUFACTURERS
   a. IN GENERAL, ONE PARTICULAR MANUFACTURER AND PART NUMBER OR SERIES IS LISTED TO DESCRIBE EQUIPMENT. EQUIVALENT EQUIPMENT OF OTHER MANUFACTURERS LISTED FOR THAT ITEM MAY BE SUBSTITUTED WITHOUT PRIOR APPROVAL. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ITEM USED FOR BIDDING PURPOSES IS TRULY EQUIVALENT TO THAT SPECIFIED. IF IT IS NOT EQUIVALENT, IT WILL BE REJECTED AT SHOP DRAWING REVIEW AND CONTRACTOR SHALL SUPPLY SPECIFIED ITEM AT HIS OWN COST.
   b. IT IS UNDERSTOOD THAT MANUFACTURERS LISTED MAY NOT ACTUALLY HAVE EQUIVALENT PRODUCT TO THAT SPECIFIED. IF CONTRACTOR/DISTRIBUTOR HAS ANY QUESTIONS REGARDING DESIRED PRODUCT CHARACTERISTICS AND SUITABILITY OF PROPOSED SUBSTITUTION, HE IS ENCOURAGED TO SUBMIT FOR PRIOR APPROVAL. ALSO, ANY MANUFACTURER NOT LISTED SHALL BE SUBMITTED FOR PRIOR APPROVAL.
2. PRIOR APPROVALS
   a. MANUFACTURERS NOT LISTED IN SPECIFICATION OR ON SCHEDULE FOR A PARTICULAR ITEM ARE OPEN FOR SUBSTITUTION PRIOR TO BID OPENING ONLY.
   b. MANUFACTURERS DESIRING APPROVAL SHALL SUBMIT CATALOG CUTS THAT DEFINE QUALITY OF PRODUCT AND ABILITY TO PERFORM AS SPECIFIED. IT IS UNDERSTOOD THAT NO TWO MANUFACTURES USE IDENTICAL METHODS OR MAKE IDENTICAL PRODUCTS. ANY AND ALL DEVIATIONS FROM THAT SPECIFIED SHALL BE CLEARLY NOTED.
   c. SUBMITTALS SHALL ARRIVE AT ENGINEER AT LEAST TEN (10) DAYS PRIOR TO BID OPENING. ALL APPROVALS WILL BE LISTED IN LAST ADDENDUM AS BEING APPROVED TO BID. ITEMS SUBSTITUTED, BUT NOT LISTED IN CONTRACT DOCUMENTS, WILL NOT BE CONSIDERED IF SUBMITTED ON SHOP DRAWINGS.
   d. APPROVAL OF SUBSTITUTE EQUIPMENT IS ON BASIS OF QUALITY ONLY. MATERIALS SUPPLIER SHALL BE RESPONSIBLE FOR HIS QUOTATION REFLECTING PROPER SELECTION OF HIS PARTICULAR EQUIPMENT WITH REGARD TO PROPER CAPACITIES, PHYSICAL DIMENSIONS, REQUIREMENTS, INTENDED FUNCTION, FINISH, COLOR, ETC. ENGINEER WILL NOT GIVE APPROVAL TO SPECIFIC MODEL NUMBERS OR CHECK CAPACITIES, DIMENSIONS, OR REQUIREMENTS. EVALUATION WILL BE ON BASIS OF QUALITY AND EQUALITY TO SPECIFIED ITEMS.
   e. PRIOR APPROVAL SHALL BE OBTAINED FROM ENGINEER AND NO OTHER ENTITY (ARCHITECT, OWNER, ETC.) IS AUTHORIZED TO GIVE SUCH APPROVAL.
3. SAMPLES
   a. WHERE, IN ENGINEER/ARCHITECT'S OPINION, PRODUCT SAMPLE IS REQUIRED IN ORDER TO DETERMINE APPEARANCE, QUALITY, WORKMANSHIP OR OPERATION, CONTRACTOR SHALL SUBMIT ACTUAL PRODUCTION SAMPLES OF ITEM IN QUESTION.
   b. SAMPLES WILL BE RETURNED TO CONTRACTOR. APPROVED SAMPLES MAY BE USED.
   c. ALL COSTS INCURRED IN PROVIDING AND RETURNING SAMPLES WILL BE CONTRACTOR'S RESPONSIBILITY.

M. PRODUCT AND SYSTEM SUBMITTALS
1. SUBMITTALS WILL BE REQUIRED FOR EACH PIECE OF EQUIPMENT, MATERIAL OR PRODUCT UTILIZED IN THE PROJECT. ALL SUBMITTAL SHALL BE SUBMITTED, REVIEWED AND ALL DISCREPANCIES ADDRESSED PRIOR TO ORDERING EQUIPMENT OR STARTING WORK. ANY EQUIPMENT ORDERED WITHOUT HAVING FIRST COMPLETED THE SUBMITTAL PROCESS IS DONE AT THE RISK OF THE CONTRACTOR. ANY WORK PERFORMED PRIOR TO COMPLETING THE SUBMITTAL PROCESS IS DONE AT THE RISK OF THE CONTRACTOR.
2. SUBMITTAL DEFINITIONS
   a. PRODUCT DATA: PROVIDE MANUFACTURERS CUT SHEETS THAT INCLUDE GENERAL PRODUCT INFORMATION INCLUDING BUT NOT LIMITED TO: MODEL NUMBER, PHYSICAL DATA, NOMINAL CAPACITIES, ROUGH-IN REQUIREMENTS.
   b. PERFORMANCE DATA: PROVIDE DETAILED PERFORMANCE AND CAPACITIES BASED ON PROJECT SPECIFIC REQUIREMENTS INCLUDING BUT NOT LIMITED TO: VOLTAGE, PHASE, AMPERAGE, OVERCURRENT PROTECTION, CONDUCTOR SIZE, CONDUCTOR MATERIAL, CONDUIT SIZE, COLOR TEMPERATURE, COLOR RENDERING INDEX, LIFE EXPECTANCE, EFFICACY, EFFICIENCY, IP RATINGS, LIGHT DISTRIBUTION TYPES AND LIGHTING CONTROL.
   c. SHOP DRAWINGS: PROVIDE DETAILED DRAWINGS OF THE EQUIPMENT SHOWING OVERALL DIMENSIONS, LOCATION OF ELECTRICAL CONNECTION, LOCATION OF ANCHORAGE POINTS, LOCATION OF ELECTRICAL AND CONTROL PANELS, AND ALL OPERATING, SERVICE AND MAINTENANCE CLEARANCES.
   d. DELEGATED DESIGN: PROVIDE DETAILED DRAWINGS PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER THAT DETAIL PERTINENT DESIGN CRITERIA, THE MATERIALS AND PRODUCTS TO BE INSTALLED AND THE REQUIRED INSTALLATION LOCATIONS.
   e. WIRING DIAGRAM: PROVIDE DIAGRAMS THAT IDENTIFY AND DETAIL REQUIRED FIELD WIRING.
   f. COLOR CHART: PROVIDE A PHYSICAL COLOR CHART OF MATERIAL SAMPLES REQUIRED FOR SELECTION OF EQUIPMENT COLORS.
   g. SUSTAINABILITY COMPLIANCE: PROVIDE LITERATURE THAT INDICATED A PRODUCTS COMPLIANCE WITH LEED OR GREEN GLOBES. SEE DIVISION 01 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
3. SUBMITTAL FORMATS
   a. INCLUDE THE FOLLOWING INFORMATION WITH EACH SUBMITTAL:
      - PROJECT NAME
      - SUBMITTAL DATE
      - NAME OF ARCHITECT
      - NAME OF ENGINEER
      - NAME OF GENERAL CONTRACTOR OR CONSTRUCTION MANAGER
      - NAME OF SUB-CONTRACTOR
      - NAME OF FIRM OR ENTITY THAT PREPARED THE SUBMITTAL
      - UNIQUE SUBMITTAL NUMBER
      - TYPE OF SUBMITTAL
      - SPECIFICATION SECTION
      - NAME OR MARK OF EQUIPMENT OR MATERIAL AND DETAIL OR DRAWINGS REFERENCE.
   b. ALL SUBMITTAL WITH THE EXCEPTION OF COLOR CHARTS OR MATERIAL SAMPLES SHALL BE ELECTRONICALLY TRANSMITTED PDF'S. ALL SUBMITTALS OVER 8 MB SHALL BE SETUP ON A SHARE FILE SITE AND ACCESS GRANTED THROUGH EMAIL WITH FOLDER'S LINK FOR DOWNLOAD.
4. SUBMITTAL REQUIREMENTS
   a. SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE SPECIFICATION SECTION. THE SUBMITTAL MUST INCLUDE ALL MATERIALS AND EQUIPMENT FOR THAT SPECIFICATION SECTION. SUBMITTALS FOR INDIVIDUAL MATERIALS OF EQUIPMENT WILL BE REJECTED WITHOUT REVIEW.
   b. SUBMITTALS SHALL BE COMPLETE, CLEARLY SHOW ITEM USED, SIZE, DIMENSIONS, CAPACITY, ROUGH IN, ETC., AS REQUIRED FOR COMPLETE CHECK AND INSTALLATION. MANUFACTURER'S LITERATURE SHOWING MORE THAN ONE ITEM SHALL BE CLEARLY MARKED AS TO WHICH ITEM IS BEING FURNISHED OR IT WILL BE REJECTED AND RETURNED WITHOUT REVIEW.
   c. EACH SUBMITTAL SHALL BE THOROUGHLY CHECKED BY THE CONTRACTOR FOR COMPLIANCE WITH THE CONTRACT DOCUMENT REQUIREMENTS, ACCURACY OF DIMENSIONS, RELATIONSHIP TO THE WORK OF OTHER TRADES, AND CONFORMANCE WITH SOUND, SAFE PRACTICES AS TO ERECTION AND INSTALLATION. EACH SUBMITTAL SHALL THEN BEAR A STAMP EVIDENCING SUCH CHECKING AND SHALL SHOW CORRECTIONS MADE, IF ANY. SUBMITTALS REQUIRING EXTENSIVE CORRECTIONS SHALL BE REVISED BEFORE SUBMISSION. EACH SUBMITTAL NOT STAMPED AND SIGNED BY THE GENERAL AND ELECTRICAL CONTRACTORS EVIDENCING SUCH CHECKING WILL BE REJECTED AND RETURNED WITHOUT REVIEW.
   d. ON EACH SUBMITTAL, CLEARLY INDICATE DEVIATIONS FROM REQUIREMENTS IN THE CONTRACT DOCUMENTS, INCLUDING MINOR VARIATIONS AND LIMITATIONS; INCLUDE RELEVANT ADDITIONAL INFORMATION AND REVISIONS, OTHER THAN THOSE REQUESTED ON PREVIOUS SUBMITTALS. INDICATE BY HIGHLIGHTING ON EACH SUBMITTAL OR NOTING ON ATTACHED SEPARATE SHEET.
   e. REVIEW OF THE SHOP DRAWINGS AND LITERATURE BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR FOR RESPONSIBILITY FOR DEVIATIONS FOR THE DRAWINGS OR SPECIFICATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN THE SHOP DRAWINGS OR LITERATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE MATERIALS AND EQUIPMENT WHICH MEET THE SPECIFICATIONS AND JOB REQUIREMENTS.
   f. LUMINAIRES SUBMITTALS SHALL INCLUDE DIMENSIONS, QUALITY, DISTRIBUTION, COLOR RENDERING INDEX, COLOR TEMPERATURE, OPTICS, PHOTOMETRICS, ALL LISTINGS (UL, DLC, ENERGY STAR, MADE IN AMERICA, ETC.), IP RATINGS, VOLTAGE, WATTAGE, WARRANTY, INSTALLATION METHODS, CONTROL METHODS, EFFICACY, EFFICIENCY, DIFFUSER OPTIONS, EMERGENCY OPERATION AND ANY REQUIRED ACCESSORIES. PROVIDE IES AND REVIT FILES UPON REQUEST.
5. ENGINEER'S REVIEW - SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE CONTRACTOR FROM ANY REQUIREMENTS OF CONTRACT DOCUMENTS. SUBMITTALS WILL NOT BE CHECKED FOR QUANTITY, DIMENSION, FIT OR PROPER TECHNICAL DESIGN OF MANUFACTURED EQUIPMENT. WHERE PRODUCT OR SYSTEM PERFORMANCE DEVIATIONS HAVE NOT BEEN SPECIFICALLY NOTED IN SUBMITTAL BY CONTRACTOR, ENGINEER'S REVIEW WILL NOT RELIEVE CONTRACTOR'S RESPONSIBILITY TO PROVIDE COMPLETE AND SATISFACTORY WORKING INSTALLATION OF EQUAL QUALITY AND PERFORMANCE TO SPECIFIED SYSTEM. ORDERING, MANUFACTURE, SHIPMENT OR INSTALLATION OF EQUIPMENT PRIOR TO RECEIPT OF ENGINEER'S WRITTEN REVIEW IS STRICTLY AT CONTRACTOR'S RISK AND ALL COSTS ASSOCIATED WITH SHIPPING, CHANGES, REPLACEMENT OR RESTOCKING SHALL BE CONTRACTOR'S RESPONSIBILITY.

N. SUB-CONTRACTORS - WITH SHOP DRAWING SUBMITTALS, CONTRACTOR SHALL SUBMIT LIST OF ALL SUB-CONTRACTORS TO BE USED FOR THE PROJECT.

O. OPERATION AND MAINTENANCE MANUALS
1. OPERATION AND MAINTENANCE MANUALS (O&M MANUALS) SHALL CONTAIN:
   a. NAMES AND CONTACT INFORMATION FOR THE PROJECT ARCHITECT, PROJECT ENGINEER.
   b. NAMES AND CONTACT INFORMATION FOR THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.
   c. NAMES AND CONTACT INFORMATION FOR SUB-CONTRACTORS.
   d. INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT.
   e. PARTS LISTS
   f. WIRING DIAGRAMS
   g. EQUIPMENT START-UP AND INSPECTION CERTIFICATES
   h. TEST AND BALANCE REPORTS
   i. COMMISSIONING REPORTS
   j. COPIES OF EQUIPMENT WARRANTIES
   k. COPIES OF SUBMITTALS
   l. RECORD DRAWINGS.
   m. TRAINING DVD'S
2. PRIOR TO SUBSTANTIAL COMPLETION SUBMIT AN ELECTRONIC COPY OF THE O&M MANUAL IN PDF FORMAT TO THE ARCHITECT, ENGINEER AND OWNER FOR REVIEW AND APPROVAL. THE PDF SHALL BE ONE FILE WITH AN INDEX AND HYPERLINKS TO EACH SECTION. INDIVIDUAL BOUND PDFS WITHOUT AUTOMATED NAVIGATION WILL BE REJECTED. ALL O&M DATA SHALL BE GROUPED BY THE EQUIPMENT TYPE AND ORDERED BY THE SPECIFICATION NUMBERING.
3. PRIOR TO FINAL PAYMENT A FINAL ELECTRONIC COPY OF THE O&M MANUAL ON AN ARCHIVAL QUALITY DVD AS WELL AS TWO PRINTED COPIES SHALL BE FURNISHED TO THE OWNER. PRINTED COPIES SHALL HAVE COMMERCIAL QUALITY 8-1/2" X 11" 3-RING BINDERS WITH TABBED DIVIDERS FOR EACH SECTION.

P. SITE EXAMINATION
1. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL VISIT SITE OF PROPOSED WORK AND FAMILIARIZE HIMSELF WITH CONDITIONS AFFECTING WORK. ALLOWANCE SHALL BE MADE IN BID FOR THESE CONDITIONS AND NO ADDITIONAL ALLOWANCE SHALL BE GRANTED BECAUSE OF LACK OF KNOWLEDGE OF SUCH CONDITIONS.
2. CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT BUILDING SITE.

Q. CUTTING AND PATCHING
1. OBTAIN WRITTEN PERMISSION OF ARCHITECT/ENGINEER BEFORE CUTTING OR PIERCING STRUCTURAL MEMBERS.
2. SLEEVES THROUGH FLOORS AND WALLS SHALL BE BLACK IRON PIPE, FLUSH WITH WALLS, CEILINGS OR FINISHED FLOORS, SIZED TO ACCOMMODATE RACEWAY. GROUT ALL PENETRATIONS THROUGH CONCRETE WALLS OR FLOORS. HOLES THROUGH EXISTING CONCRETE AND CONCRETE BLOCK (CMU) SHALL BE CORE DRILLED.

R. CLEAN-UP AND COMMISSIONING
1. DURING CONSTRUCTION - THROUGHOUT CONSTRUCTION, KEEP WORK AREA REASONABLY NEAT AND ORDERLY BY PERIODIC CLEAN-UPS.
2. COMMISSIONING - AS INDEPENDENT PARTS OF CONSTRUCTION ARE COMPLETED, THEY MAY BE COMMISSIONED AND UTILIZED DURING CONSTRUCTION. SEE VARIOUS SECTIONS FOR RESTRICTIONS.
3. AT COMPLETION OF WORK
   a. CLEAN EQUIPMENT OF DIRT AND DEBRIS, INCLUDING INTERIOR OF PANELS, OUTLET BOXES, ETC. REMOVE LABELS FROM AND CLEAN ALL FIXTURE LENSES.
   b. REMOVE MATERIALS, SCRAPS, ETC., RELATIVE TO THIS WORK AND LEAVE PREMISES IN CLEAN AND ORDERLY CONDITION. THIS INCLUDES ALL TUNNELS, ATTICS, CEILING AND CRAWL SPACES.
   c. REMOVE ALL TEMPORARY FACILITIES AND RESTORE TO CONDITIONS PRESENT PRIOR TO WORK.

S. PROJECT COMPLETION AND DEMONSTRATION
1. TESTING
   a. PRIOR TO FINAL TEST, ALL SWITCHES, PANELBOARDS, DEVICES, AND FIXTURES SHALL BE IN PLACE.
   b. AT COMPLETION OF WORK, OR UPON REQUEST FROM ARCHITECT/ENGINEER, PLACE ENTIRE ELECTRICAL INSTALLATION, AND/OR ANY PORTION THEREOF, IN OPERATION TO DEMONSTRATE SATISFACTORY OPERATION.
   c. ALL ELECTRICAL SYSTEMS SHALL BE FREE FROM SHORT CIRCUITS AND UNINTENTIONAL GROUNDS.
   d. FURNISH ONE (1) COPY OF CERTIFIED TEST RESULTS TO ARCHITECT/ENGINEER PRIOR TO FINAL INSPECTION AND INCLUDE ONE (1) COPY IN EACH BROCHURE OF EQUIPMENT.
2. ADJUSTMENTS
   a. MAKE ALL CHANGES NECESSARY TO BALANCE CONNECTED ELECTRICAL LOADS ON COMPLETE SYSTEM. ARRANGE FOR BALANCED CONDITIONS OF CIRCUITS UNDER CONNECTED LOAD DEMANDS, AS CONTEMPLATED BY NORMAL WORKING CONDITIONS. FINAL LOAD AND BALANCE TEST SHALL BE DEMONSTRATED IN PRESENCE OF ARCHITECT/ENGINEER.
   b. IMMEDIATELY CORRECT ALL DEFICIENCIES WHICH ARE EVIDENCED DURING TESTS AND REPEAT TESTS UNTIL SYSTEM IS APPROVED. DO NOT COVER OR CONCEAL ELECTRICAL INSTALLATIONS UNTIL SATISFACTORY TESTS ARE MADE AND APPROVED.
3. FINAL WALK-THRU
   a. CONDUCT OPERATING TESTS DURING FINAL INSPECTION. DEMONSTRATE INSTALLATION TO OPERATE SATISFACTORILY IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS. SHOULD ANY PORTION OF INSTALLATION FAIL TO MEET REQUIREMENTS OF CONTRACT DOCUMENTS, REPAIR OR REPLACE ITEMS FAILING TO MEET REQUIREMENTS UNTIL ITEMS CAN BE DEMONSTRATED TO COMPLY.
   b. HAVE INSTRUMENTS AVAILABLE FOR MEASURING LIGHT INTENSITIES, VOLTAGE AND CURRENT VALUES AND FOR DEMONSTRATION OF CONTINUITY, GROUNDS, OR OPEN CIRCUIT CONDITIONS.
   c. FURNISH PERSONNEL TO ASSIST IN TAKING MEASUREMENTS AND MAKING TESTS. IN EVENT THAT SYSTEMS ARE NOT COMPLETE AND FULLY OPERATIONAL AT TIME OF FINAL INSPECTION, ALL COSTS OF ANY SUBSEQUENT INSPECTIONS SHALL BE BORNE BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

T. OWNER ORIENTATION AND TRAINING
1. GENERAL
   a. THE SYSTEM TRAINING IS INTENDED TO FAMILIARIZE THE OWNER'S OPERATING AND MAINTENANCE STAFF WITH ALL SYSTEMS REQUIRING MAINTENANCE. TRAINING IS TO BE PROVIDED AFTER THE SYSTEMS ARE IN PLACE AND OPERATIONAL, AFTER ISSUES NOTED DURING COMMISSIONING HAVE BEEN RESOLVED, AND BEFORE FINAL ACCEPTANCE.
   b. ALL TRAINING SHALL BE VIDEO TAPED, REPRODUCED ON DVD'S AND GIVEN TO THE OWNER. PROVIDE A COPY FOR EACH O&M MANUAL PRODUCED.
   c. SEE INDIVIDUAL SPECIFICATION SECTIONS FOR ADDITIONAL TRAINING REQUIREMENTS.
2. ATTENDANCE - TRAINING IS TO BE PROVIDED BY CONTRACTOR'S REPRESENTATIVES THAT ARE FAMILIAR WITH THE SYSTEM'S OPERATION AND MAINTENANCE REQUIREMENTS. INDIVIDUAL TRAINING SESSIONS (MODULES) ARE TO PROVIDED FOR EACH TYPE OR GROUP OF SYSTEMS, SEPARATED ROUGHLY BY TRADE GROUP THAT WILL BE PERFORMING MAINTENANCE ON THE SYSTEM.
3. SCHEDULE - TRAINING SESSIONS ARE TO BE PROVIDED FOR EACH TRAINING MODULE. LENGTH OF TRAINING SESSIONS WILL BE DETERMINED BY SCOPE OF TRAINING INDICATED BELOW, AND AS COORDINATED WITH OWNER AFTER DRAFT COPY OF TRAINING DOCUMENTS HAVE BEEN REVIEWED.
4. TRAINING DOCUMENTATION
   a. CONTRACTOR TO SUBMIT DRAFT COPY OF AGENDA AND TRAINING DOCUMENTS TO OWNER FOR REVIEW AT LEAST TWO WEEKS PRIOR TO TRAINING DATE.
   b. PROVIDE A COPY OF THE FOLLOWING ITEMS FOR EACH PERSON THAT WILL BE ATTENDING THE TRAINING SESSIONS. COORDINATE REQUIRED NUMBER WITH THE OWNER.
      - TRAINING AGENDA.
      - SUMMARY OF NEW SYSTEMS AND EXISTING SYSTEMS AFFECTED BY THIS PROJECT.
      - SUMMARY OF WORK PERFORMED UNDER THIS PROJECT.
      - CONTROL SYSTEM DRAWINGS AND SEQUENCES OF OPERATION.
      - LIST OF IMPORTANT MAINTENANCE AND TROUBLE-SHOOTING OPERATIONS FOR ALL SYSTEMS.
   c. PROVIDE MINIMUM OF 2 COPIES OF CONTRACT DOCUMENTS INCLUDING ALL DRAWINGS, SPECIFICATIONS, ADDENDUMS, AND CHANGE ORDERS.
5. TRAINING SESSIONS
   a. ASSEMBLE AT LOCATION TO BE DETERMINED BY THE OWNER.
   b. DISTRIBUTE TRAINING DOCUMENTATION AS INDICATED ABOVE.
   c. PROVIDE CLASSROOM STYLE TRAINING IF REQUIRED FOR ORIENTATION, DISCUSSION OF NEW SYSTEMS AND EXISTING SYSTEMS AFFECTED BY THIS PROJECT, AND OTHER ISSUES APPROPRIATE FOR A CLASSROOM FORMAT.
   d. VISIT SITE AND REVIEW LOCATIONS, AND PERFORM DETAILED REVIEW OF OPERATION AND MAINTENANCE REQUIREMENTS FOR CURRENT SYSTEMS.
   e. ALL TRAINING SESSION SHALL BE VIDEO RECORDED AND DISTRIBUTED TO THE OWNER UPON COMPLETION IN DVD FORMAT, OR OWNER DESIRED FORMAT. INCLUDE ALL TRAINING VIDEOS IN THE O&M MANUAL.

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ELECTRICAL SPECIFICATIONS

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260519 - CONDUCTORS

A. FEEDERS: COPPER, TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
B. BRANCH CIRCUITS: COPPER, TYPE THHN/THWN-2, SOLID FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER. SINGLE CONDUCTORS IN RACEWAY.
C. CORD DROPS AND PORTABLE APPLIANCE CONNECTIONS: TYPE SO, CORD WITH STAINLESS-STEEL WIRE-MESH, STRAIN RELIEF DEVICE AT TERMINATIONS.
D. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120 V BRANCH CIRCUIT.

260526 - GROUNDING AND BONDING

A. GROUNDING ELECTRODE CONDUCTOR: BARE COPPER, SIZED PER NEC 250.66.
B. BONDING CONDUCTOR: BARE COPPER FOR LENGTHS OF 6 FEET OR LESS, COPPER WITH INSULATION IN PVC CONDUIT (METALLIC CONDUIT IN AIR PLENUM) WHERE LONGER THAN 6 FEET IN LENGTH. IF METALLIC CONDUIT IS USED, PROVIDE BONDING BUSHING AT EACH END. SIZE PER NEC 250.102.
C. EQUIPMENT GROUND CONDUCTOR: COPPER WITH GREEN INSULATION (LARGER WIRES MAY BE PERMANENTLY MARKED WITH GREEN), SIZED PER NEC 250.122. DO NOT RELY ON CONDUIT FOR THE GROUNDING PATH.
D. GROUNDING BUS: RECTANGULAR COPPER BAR, 1/4" X 4" X 12" WITH 9/32" HOLES SPACED 1-1/8" APART. WALL-MOUNT WITH STAND-OFF INSULATORS.
E. UFER GROUND (CONCRETE-ENCASED GROUNDING ELECTRODE): FABRICATE ACCORDING TO NFPA 70. USE A MINIMUM OF 20 FEET OF BARE COPPER CONDUCTOR NOT SMALLER THAN #4 AWG. IF CONCRETE FOUNDATION IS LESS THAN 20 FEET LONG, COIL EXCESS CONDUCTOR WITHIN BASE OF FOUNDATION. BOND GROUNDING CONDUCTOR TO REINFORCING STEEL IN AT LEAST FOUR LOCATIONS AND TO ANCHOR BOLTS. EXTEND GROUNDING CONDUCTOR BELOW GRADE AND CONNECT TO BUILDING'S GROUNDING GRID OR TO GROUNDING ELECTRODE EXTERNAL TO CONCRETE.
F. GROUND RODS: COPPER-CLAD STEEL; 3/4 INCH BY 10 FEET. DRIVE RODS UNTIL TOPS ARE 2 INCHES BELOW FINISHED FLOOR OR FINAL GRADE. INSTALL AT LEAST 2 GROUND RODS, SPACED AT LEAST 10 FEET FROM EACH OTHER AND LOCATED AT LEAST THE SAME DISTANCE FROM OTHER GROUNDING ELECTRODES.
G. GROUND ROD CLAMPS: MECHANICAL TYPE, COPPER OR COPPER ALLOY, TERMINAL WITH HEX HEAD BOLT.
H. WELDED CONNECTORS: EXOTHERMIC-WELDING KITS OF TYPES RECOMMENDED BY KIT MANUFACTURER FOR MATERIALS BEING JOINED AND INSTALLATION CONDITIONS.
I. BEAM CLAMPS: WHEN AVAILABLE, BOND STRUCTURAL STEEL TO GROUNDING ELECTRODE SYSTEM WITH MECHANICAL TYPE CLAMP TERMINAL WITH GROUND WIRE ACCESS FROM FOUR DIRECTIONS, AND DUAL, TIN-PLATED OR SILICON BRONZE BOLTS.
J. BUS-BAR CONNECTORS: MECHANICAL TYPE, CAST SILICON BRONZE, SOLDERLESS COMPRESSION-TYPE WIRE TERMINALS, AND LONG-BARREL, TWO-BOLT CONNECTION TO GROUND BUS BAR.
K. UNDERGROUND GROUNDING CONDUCTORS: INSTALL BARE TINNED-COPPER CONDUCTOR, NO. 2/0 AWG MINIMUM. BURY AT LEAST 24 INCHES BELOW GRADE.

260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

A. MINIMUM RACEWAY SIZE: 3/4 INCH TRADE SIZE FOR ALL APPLICATIONS.
B. INSTALL NONMETALLIC CONDUIT OR TUBING FOR PROTECTING BARE GROUNDING CONDUCTORS.
C. DO NOT INSTALL RACEWAYS OR ELECTRICAL ITEMS ON ANY "EXPLOSION-RELIEF" WALLS OR ROTATING EQUIPMENT.
D. DO NOT FASTEN CONDUITS ONTO THE BOTTOM SIDE OF A METAL DECK ROOF.
E. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE FINISHED SLAB.
F. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH IT IS ATTACHED.
G. UNLESS BURIED, INSTALL ALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.
H. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN MORE. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ENSURE A CONTINUOUS GROUND PATH.
I. RACEWAYS MAY BE INSTALLED UNDER THE CONCRETE SLAB, BUT NO CONDUITS SHALL BE EMBEDDED WITHIN THE SLAB. DIRECT-BURIED CONDUIT - INSTALL MANUFACTURED RIGID STEEL CONDUIT ELBOWS FOR STUB-UPS AT POLES AND EQUIPMENT AND AT BUILDING ENTRANCES THROUGH FLOOR. ANY METALLIC CONDUIT THAT DOES OR MAY COME INTO CONTACT WITH SOIL SHALL BE COATED WITH TWO COATS OF BITUMASTIC OR TWO LAYERS OF 10 MIL. CORROSION PROTECTION TAPE.
J. INSTALL FIRESTOPPING AT PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES.
K. INSTALL SLEEVES AND SLEEVE SEALS AT PENETRATIONS OF EXTERIOR FLOOR AND WALL ASSEMBLIES. INCLUDE CAST-IRON PIPE SLEEVES SIZED TO ALLOW FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING SLEEVE-SEAL SYSTEM WHICH INCLUDES MANUFACTURED EPDM RUBBER INTERLOCKING LINKS SHAPED TO FIT SURFACE OF PIPE AND WITH NUMBER REQUIRED FOR PIPE MATERIAL AND SIZE OF PIPE. INCLUDE STAINLESS STEEL PRESSURE PLATES AND CONNECTING BOLTS AND NUTS.
L. INDOOR RACEWAYS:
   1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT.
   2. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: RIGID STEEL CONDUIT.
   3. CONCEALED IN NEW CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT.
   4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
   5. DAMP LOCATIONS: EMT WITH COMPRESSION FITTINGS.
   6. WET LOCATIONS: RIGID STEEL CONDUIT.
   7. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 3R, NONMETALLIC IN DAMP OR WET LOCATIONS.
   8. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION.
   9. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS, UNLESS NOTED OTHERWISE.
   10. INSTALL SURFACE RACEWAYS ONLY WHERE SPECIFICALLY INDICATED ON DRAWINGS. INSTALL SURFACE RACEWAY WITH A MINIMUM 2-INCH RADIUS CONTROL AT BEND POINTS.
   11. FLEXIBLE CONDUIT CONNECTIONS: MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR RECESSED AND SEMI-RECESSED LUMINAIRES, EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS. USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE. USE LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
M. OUTDOOR RACEWAYS:
   1. EXPOSED CONDUIT: RIGID STEEL CONDUIT.
   2. CONCEALED CONDUIT, ABOVE GROUND: EMT.
   3. UNDERGROUND CONDUIT: RNC, TYPE EPC-40-PVC, DIRECT BURIED. USE TYPE EPC-80-PVC UNDER PAVED SURFACES.
   4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFNC.
   5. BOXES AND ENCLOSURES, ABOVE GROUND: NEMA250, TYPE 3R.
N. ENCLOSURES – BOXES AND ENCLOSURES FOR PANELBOARD, DISCONNECT SWITCH AND MOTOR CONTROL UNITS, ETC. BASED ON THE INSTALLATION LOCATIONS/ENVIRONMENTS.
   1. INDOOR, DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1.
   2. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
   3. OTHER WET OR DAMP, INDOOR LOCATIONS: NEMA 250, TYPE 4.
   4. INDOOR LOCATIONS SUBJECT TO DUST, FALLING DIRT, AND DRIPPING NONCORROSIVE LIQUIDS: NEMA 250, TYPE 12.
O. GENERAL BOX MOUNTING
   1. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
   2. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.

260548.16 - SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

A. IN GENERAL, ALL ELECTRICAL EQUIPMENT SHALL BE DESIGNED AND INSTALLED TO WITHSTAND A SEISMIC EVENT. THE TERM "WITHSTAND" MEANS "THE EQUIPMENT WILL REMAIN IN PLACE WITHOUT SEPARATION OF ANY PARTS WHEN SUBJECTED TO THE SEISMIC FORCES SPECIFIED AND THE UNIT WILL BE FULLY OPERATIONAL AFTER THE SEISMIC EVENT."
B. FOR EQUIPMENT, COMPONENTS, CHANNEL BRACINGS, RESTRAINT CABLES, ANCHOR BOLTS, ETC. SEISMIC-RESTRAINT LOADING SHALL COMPLY WITH DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS, S_{DS} = 0.26
C. COMPONENT IMPORTANCE FACTOR, I_P = 1.0 FOR ELECTRICAL EQUIPMENT EXCEPT FOR COMPONENTS REQUIRED FOR LIFE-SAFETY PURPOSES AFTER AN EARTHQUAKE SUCH AS EGRESS LIGHTING AND FIRE ALARM CONTROL PANEL WHERE I_P = 1.5.
D. COMPONENT RESPONSE MODIFICATION FACTOR, R_P: SEE TABLE 13.6-1 OF ASCE 7-22.
E. COMPONENT AMPLIFICATION FACTOR, A_P: SEE TABLE 13.6-1 OF ASCE 7-22.

260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. CONDUCTOR COLOR-CODING:
   1. 240/120V: PHASE A - BLACK, PHASE B - RED, NEUTRAL - WHITE.
   2. GROUNDS: BARE COPPER OR GREEN.
B. ALL EQUIPMENT SHALL HAVE AN IDENTIFICATION LABEL, BLACK LETTERS ON A WHITE FIELD. LABEL INCLUDES UNIT NAME AND CIRCUIT THAT FEEDS IT.
   1. 1" MINIMUM HEIGHT LETTERS FOR SERVICE DISCONNECT AND EMERGENCY SHUT-OFF SWITCHES.
   2. 1/2" MINIMUM HEIGHT LETTERS FOR PANELBOARDS, SWITCHBOARDS, RELAY ENCLOSURES AND TRANSFORMERS.
   3. 1/4" MINIMUM HEIGHT LETTERS FOR DISCONNECT SWITCHES AND MOTOR STARTERS.
   4. 1/8" MINIMUM HEIGHT LETTERS FOR DEVICE COVERPLATES.
C. PANELBOARDS LABEL SHALL INCLUDE - PANEL NAME, VOLTAGE, AMPERAGE, NUMBER OF PHASES AND WIRES, SOURCE AND AVAILABLE FAULT CURRENT WITH DATE CALCULATED. INCLUDE TYPEWRITTEN DIRECTORY OF CIRCUITS IN THE LOCATION PROVIDED BY PANELBOARD MANUFACTURER. INDICATE CIRCUIT LOAD INCORPORATING OWNER'S FINAL ROOM DESIGNATIONS. SPARES SHALL BE FILLED IN BY HAND WITH PENCIL. ON MAIN DISTRIBUTION PANEL DOOR / SWITCHBOARD FRONT PROVIDE A LAMINATED ONE-LINE DIAGRAM OF THE ELECTRICAL SYSTEM AND ALL PANEL CONFIGURATIONS.
D. RECEPTACLES: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH THE DEVICE IS SERVED.
   1. MARK OUTSIDE OF THE BOX OR COVERPLATE WITH PERMANENT MARKER.

262416 - PANELBOARDS

A. FLUSH AND SURFACE-MOUNTED ENCLOSURES (AS NOTED ON PLANS) WITH DEAD-FRONT CABINETS. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
B. MAXIMUM HEIGHT CABINET
   a. STANDARD: 84 INCHES TO TOP OF ENCLOSURE (SO THAT MAXIMUM HEIGHT OF HIGHEST BREAKER IS 78 INCHES MAXIMUM).
C. INCOMING MAINS LOCATION: TOP OR BOTTOM AS DETERMINED BY CONTRACTOR, BASED ON FIELD CONDITIONS, UNO.
D. HARD-DRAWN COPPER PHASE, NEUTRAL, AND GROUND BUSES WITH 98 PERCENT CONDUCTIVITY. MECHANICAL TYPE LUGS WITH A LUG ON THE NEUTRAL AND GROUND BARS FOR EACH BREAKER POLE IN THE PANELBOARD. CONDUCTOR CONNECTORS SHALL BE SUITABLE FOR USE WITH CONDUCTOR MATERIAL, QUANTITY AND SIZES (REFER TO THE FEEDER SCHEDULE).
E. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. ASSEMBLY SHALL BE LISTED BY AN NRTL FOR 100 PERCENT INTERRUPTING CAPACITY. ALL OVERCURRENT PROTECTIVE DEVICES (OCPDS) SHALL BE FULLY RATED FOR AVAILABLE FAULT CURRENT. NO SERIES RATING WILL BE ALLOWED.
F. BRANCH OVERCURRENT PROTECTIVE DEVICES - BOLT-ON CIRCUIT BREAKERS OR PLUG-IN CIRCUIT BREAKERS WHERE INDIVIDUAL POSITIVE-LOCKING DEVICE REQUIRES MECHANICAL RELEASE FOR REMOVAL. REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS. MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE ONLY AND SUITABLE FOR INDIVIDUAL AS WELL AS PANELBOARD MOUNTING.
G. BREAKERS SHALL BE ONE- OR TWO POLE AS SCHEDULED, OPERATE MANUALLY FOR NORMAL ON-OFF SWITCHING AND AUTOMATICALLY UNDER OVERLOAD AND SHORT CIRCUIT CONDITIONS. SPACE SAVER OR "THIN FIN" STYLE WILL NOT BE ALLOWED.
H. THE OPERATING HANDLE SHALL OPEN AND CLOSE ALL POLES SIMULTANEOUSLY ON MULTI-POLE BREAKERS. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITIONS. DO NOT USE SINGLE-POLE CIRCUIT BREAKERS WITH HANDLE TIES WHERE MULTI-POLE BREAKERS ARE INDICATED ON THE PANEL SCHEDULE OR WHERE REQUIRED FOR POLY-PHASE LOADS.
I. BREAKERS SHALL BE OF THE TYPE NOTED ON PANEL SCHEDULE (SHUNT-TRIP, GFI, ARC-FAULT, ETC.) OR AS REQUIRED BY THE EQUIPMENT BEING PROVIDED.
J. BREAKERS NOTED AS GFI PROTECTED FOR EQUIPMENT SHALL HAVE A 30mA OR GREATER TRIP.
K. BREAKERS NOTED AS GFI PROTECTED FOR PERSONNEL SHALL HAVE A 6mA TRIP.
L. A CONTROL TRANSFORMER WITH PRIMARY AND SECONDARY FUSING SHALL BE PROVIDED AS REQUIRED FOR CONTROL OF SHUNT-TRIP BREAKERS.
M. DESIGN OF LIGHTING AND APPLIANCE BRANCH IS GENERALLY BASED ON THE SQUARE D NQ SERIES PANELBOARDS.
N. ARRANGE CONDUCTORS IN GUTTERS INTO GROUPS AND BUNDLE AND WRAP WITH WIRE TIES.

262726 - WIRING DEVICES

A. STRAIGHT-BLADE RECEPTACLES - DUPLEX CONVENIENCE RECEPTACLES, 125V, 20A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.
   1. COOPER; 5351 (SINGLE), 5362 (DUPLEX), TR5362 (TAMPER DUPLEX).
   2. HUBBELL; HBL5361 (SINGLE), HBL5362 (DUPLEX), HBL5362TR (TAMPER DUPLEX).
   3. LEVITON; 5361 (SINGLE), 5362 (DUPLEX), 5362-SG (TAMPER DUPLEX).
   4. P&S; 5351 (SINGLE), CR85362 (DUPLEX), TR5352 (TAMPER DUPLEX).
B. GFCI RECEPTACLES - 125V, 20A, DUPLEX, STRAIGHT BLADE, NON-FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, UL 943 CLASS A, AND FS W-C-596. INCLUDE SELF-TESTING AND INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI PROTECTION.
   1. COOPER; VGF20 (STANDARD), TRVGF20 (TAMPER), WRSGF20 (OUTDOOR).
   2. HUBBELL; GFR5352L (STANDARD), GFRTRST20 (TAMPER), GFTWRST20 (OUTDOOR).
   3. LEVITON; GFNT2 (STANDARD), GFTR2-KW (TAMPER), GFWR2 (OUTDOOR).
   4. P&S; 2097 (STANDARD), 2097TR (TAMPER), 2097TRWR (OUTDOOR).
C. TOGGLE SWITCHES - 120/277V, 20A. COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896.
   1. COOPER; AH1221 (SINGLE-POLE), AH1222 (TWO-POLE), AH1223 (THREE-WAY), AH1224 (FOUR-WAY).
   2. HUBBELL; HBL1221 (SINGLE-POLE), HBL1222 (TWO-POLE), HBL1223 (THREE-WAY), HBL1224 (FOUR-WAY).
   3. LEVITON; 1221-2 (SINGLE-POLE), 1222-2 (TWO-POLE), 1223-2 (THREE-WAY), 1224-2 (FOUR-WAY).
   4. P&S; CSB20AC1 (SINGLE-POLE), CSB20AC2 (TWO-POLE), CSB20AC3 (THREE-WAY), CSB20AC4 (FOUR-WAY).
D. DEVICE COLOR - WHITE. THIS IS UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING.
E. WALL PLATES
   1. ALL LOCATIONS - NEMA 250, COMPLYING WITH TYPE 3R, HEAVY DUTY WEATHERPROOF-IN-USE, DIE-CAST ALUMINUM WITH LOCKABLE COVER.
F. IDENTIFICATION - IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH THE DEVICE IS SERVED.
   1. MARK OUTSIDE OF THE BOX OR COVERPLATE WITH PERMANENT MARKER.

262713 - ELECTRICITY METERING

A. COORDINATE ELECTRICAL SERVICE CONNECTIONS WITH THE UTILITY COMPANY, NORTHWESTERN ENERGY AND UTILITY-FURNISHED COMPONENTS. SUBMIT ALL METERING TO THE UTILITY COMPANY FOR APPROVAL. COORDINATE ALL UTILITY REQUIREMENTS AND ROUTING PRIOR TO ROUGH-IN. OBTAIN ALL REQUIREMENTS IN WRITING.
B. METERS WILL BE FURNISHED BY UTILITY COMPANY. CONTRACTOR SHALL PROVIDE METER SOCKETS.
C. COMBINATION MAIN BREAKER/ METER SOCKETS: COMPLY WITH REQUIREMENTS OF ELECTRICAL UTILITY COMPANY INCLUDING:
   1. SIZING, GAUGE STEEL, LOCKING CAPABILITIES, ETC.
   2. MOUNTING CONFIGURATION AND METHODS
   3. APPROPRIATE METER JAW CONFIGURATION
   4. LANDING LUG SIZE, LOCATION AND CONFIGURATION.
   5. ANTI-INVERSION CLIP AND LEVER BYPASS AS REQUIRED.
D. INSTALL RACEWAYS AND EQUIPMENT ACCORDING TO UTILITY COMPANY'S WRITTEN INSTRUCTIONS. PROVIDE EMPTY CONDUITS FOR METERING LEADS AND EXTEND GROUNDING CONNECTIONS AS REQUIRED BY UTILITY COMPANY.

265110 - LED LIGHTING

A. GENERAL - ALL FIXTURES SHALL HAVE LED LIGHT SOURCES UNO.
   1. INTERNAL, FACTORY INSTALLED BALLAST/DRIVER UNO.
   2. DIMMABLE FROM 100% TO 10% OF MAXIMUM LIGHT OUTPUT.
   3. NOMINAL OPERATING VOLTAGE: AS NOTED ON THE PLANS.
   4. LENS THICKNESS: AT LEAST 0.125 INCH MINIMUM UNO.
   5. INDOOR FIXTURES: MINIMUM CRI OF 80 UNO AND CCT OF 4,000K UNO.
   6. OUTDOOR FIXTURES: MINIMUM CRI OF 65 UNO AND CCT OF 4,000K UNO.
   7. OUTDOOR FIXTURES SHALL HAVE FULL CUT-OFF REFLECTORS WITH MOUNTING TYPE AND DISTRIBUTION AS NOTED ON PLANS.
B. LED ASSEMBLIES - UL RATED FOR 40 DEGREE C AMBIENT ENVIRONMENTS, 50,000 HOUR FIXTURE LIFE INCLUDING DRIVER, 5 YEAR WARRANTY AND COMPLIANT WITH IESNA LM-79 AND LM-80 STANDARDS.
C. STANDARDS - UNO, COMPLY WITH THE FOLLOWING:
   1. ENERGY STAR OR DESIGN LIGHTS CONSORTIUM (DLC) CERTIFIED.
   2. NRTL COMPLIANCE: LUMINAIRES FOR HAZARDOUS LOCATIONS SHALL BE LISTED AND LABELED FOR INDICATED CLASS AND DIVISION OF HAZARD BY AN NRTL.
   3. UL LISTING: LISTED FOR DAMP AND/OR WET LOCATIONS AS REQUIRED.
   4. RECESSED LUMINAIRES SHALL COMPLY WITH NEMA LE 4.
   5. EXTERIOR LUMINAIRES SHALL HAVE INTERNATIONAL DARK-SKY ASSOCIATION (IDA) - FIXTURE SEAL OF APPROVAL (FSA).

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Revisions 1

ELECTRICAL SPECIFICATIONS

E003

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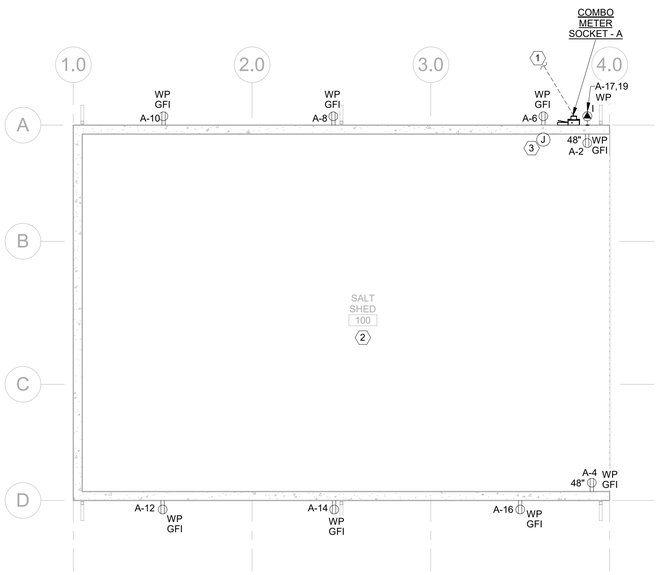

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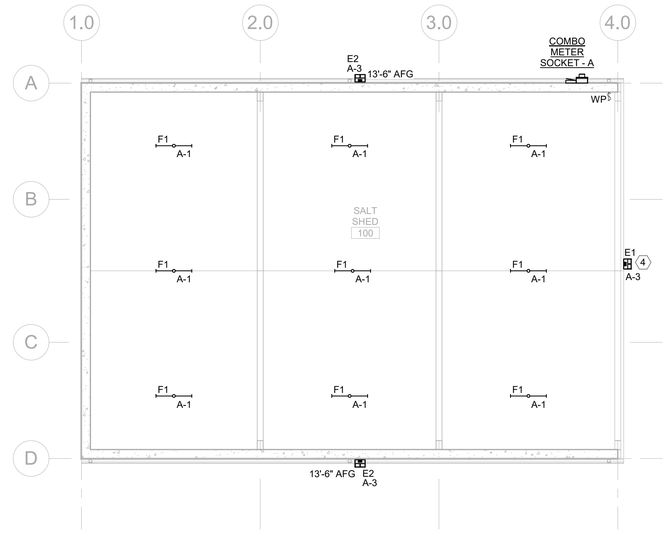
1 ELECTRICAL POWER PLAN

E201 SCALE: 1/8" = 1'-0"



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2 ELECTRICAL LIGHTING PLAN

E201 SCALE: 1/8" = 1'-0"

ELECTRICAL GENERAL NOTES

A. IT IS ABSOLUTELY NECESSARY FOR ALL TRADES INVOLVED TO COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF STRUCTURAL FRAMING, CONDUITS, DIFFUSERS, BOXES, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.
B. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING OF FLOORS, WALLS, CEILINGS, AND ROOFS TO PERFORM THE REQUIRED WORK DEPICTED IN THESE DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING OF HOLES TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
C. ALL ELECTRICAL SYSTEMS IN PROJECT SHALL BE SURFACE MOUNTED. RACEWAY SYSTEMS SHALL BE COMPRISED OF IMC CONDUIT SYSTEMS WITH COMPRESSION FITTINGS OR THREADED FITTINGS AND METALLIC, SURFACE MOUNTED CORROSION RESISTIVE (BELL) BACK BOXES.
D. LINES SHOWN BETWEEN ELECTRICAL EQUIPMENT ITEMS DOES NOT REPRESENT CIRCUITRY, BUT RATHER SHALL BE USED FOR EC REFERENCE IN PROVIDING DESIRED CONTROL GROUPING WHERE IT MAY BE UNCLEAR.

KEY NOTES:

1 UNDER GROUND TO UTILITY POLE WITH POLE MOUNTED TRANSFORMER LOCATED APPROXIMATELY 155' NORTHWEST OF THIS LOCATION. SEE RISER DIAGRAM ON E001 AND CIVIL SITE PLAN FOR ADDITIONAL DETAILS AND EXACT LOCATION OF POLE.
2 BUILDING WALLS ARE POUR IN PLACE CONCRETE UP TO 8' AFF. ABOVE 8' WALL ARE PRE-MANUFACTURED METAL BUILDING CONSTRUCTION WITH STEEL SIDING.
3 ALL RACEWAY SYSTEMS SHALL ROUTE UP WALL TO BE ABOVE THE CONCRETE WALL TO ALLOW ROUTING OF CONDUITS FROM COMBINATION PANEL/ METER SOCKET ON THE BUILDING EXTERIOR TO SUPPORT ELECTRICAL DEVICES IN THE BUILDING.
4 MOUNT LIGHT ON THE FACE OF THE STRUCTURAL FRAME AT THIS LOCATION. FIXTURE WILL NEED TO BE OFFSET TO ONE SIDE OF THE ROOF CONNECTION TO ALLOW FOR MOUNTING. EC TO LOCATE FIXTURE AS CLOSE AS POSSIBLE TO THE CENTER RIDGE LINE OF THE ROOF. ROUTE SERVING RACEWAY ON THE FACE OF THE STRUCTURAL FRAMING, HOLDING TIGHT TO THE INSIDE CORNER OF THE "I" FORMED IN THE FRAME.
5 APPROXIMATE LOCATION OF THE SERVING UTILITY POLE ON SITE THAT WILL BE THE SOURCE OF POWER TO NEW SALT BUILDING. FINAL DETAILS MUST BE COORDINATED WITH NORTHWESTERN ENERGY BY THE EC PRIOR TO PROCEEDING WITH WORK.

LUMINAIRE SCHEDULE

TYPE	LAMPS	LOAD (W)	OUTPUT (LM, NOMINAL)	CCT (K)	DESCRIPTION	MFR	CATALOG NO. OR SERIES	MOUNTING	VOLTAGE	NOTES
E1	LED	46 W	5,454	4,000	FULL CUT OFF LED WALL PACK WITH TYPE 3 OPTICS, BI-LEVEL MOTION DETECTOR (15-30') WITH INTEGRAL PHOTOCELL AND SURFACE BACK BOX.	LITHONIA	DSXW1 LED 20C 700 40K T3M MVOLT BBW PIRH1FC3V DDBXD	WALL/ SURFACE	120 V	2,4
E2	LED	46 W	5,454	4,000	FULL CUT OFF LED WALL PACK WITH TYPE 3 OPTICS, BI-LEVEL MOTION DETECTOR (8-15') WITH INTEGRAL PHOTOCELL AND SURFACE BACK BOX.	LITHONIA	DSXW1 LED 20C 700 40K T3M MVOLT BBW PIR1FC3V DDBXD	WALL/ SURFACE	120 V	2,4
F1	LED	75 W	11,979	4,000	4' INDUSTRIAL ENCLOSED GASKETED LED FIXTURE W/ CLEAR ACRYLIC LENS & MEDIUM OPTICS	LITHONIA	FEM L48 12000LM IMACD MD MVOLT GZ10 40K 80CRI	CEILING/ SURFACE	120 V	2

NOTES:
1. PRIOR SUBMITTAL NOT REQUIRED. ALL ALTERNATE FIXTURE SHOP DRAWINGS WILL BE REVIEWED AFTER THE PROJECT IS AWARDED.
2. PRIOR SUBMITTAL IS REQUIRED.
3. ALTERNATE FIXTURE IS NOT ACCEPTED FOR SUBSTITUTIONS.
4. MOUNTING HEIGHT IS NOTED ON THE PLANS.

GENERAL NOTE:
THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND PROVIDE ALL MOUNTING, FIRE-RATED, AND IC-RATED ACCESSORIES AS REQUIRED. FOR FIRE-RATED CEILING ASSEMBLIES AND FOR CEILINGS WITH INSULATION, VERIFY ALL RECESSED LUMINAIRE HOUSINGS ARE RATED APPROPRIATELY OR PROVIDE DROP-OVER ENCLOSURES OR TENTS FOR LUMINAIRES. VERIFY THAT DROP-OVER ENCLOSURES OR TENTS ALLOW FOR AIR SPACE AROUND LUMINAIRE PER MANUFACTURER'S RECOMMENDATIONS.

Branch Panel: A

Location: BUILDING EXTERIOR
Supply From: UTILITY
Mounting: Surface
Enclosure: Nema 3R
Volts: 120/240 Single
Phases: 1
Wires: 3
A.F.C.: 4,590
Mains Type: MCB
Mains Rating: 125 A
MCB Rating: 125 A

Notes:
MANUFACTURER/ TYPE: SQ D, HOMELINE COMBINATION METER SOCKET/ LOAD CENTER

CKT	Circuit Description	Load Classification	Trip	Poles	A		B		Poles	Trip	Load Classification	Circuit Description	CKT
1	LTG - BUILDING INTERIOR	Lighting	20 A	1	675	1800			1	20 A	Receptacle	RCPT - BUILDING INTERIOR, NORTH	2
3	LTG - BUILDING EXTERIOR	Lighting	20 A	1			138	1800	1	20 A	Receptacle	RCPT - BUILDING INTERIOR, SOUTH	4
5	SPARE	--	20 A	1	0	1800			1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, NORTH EAST	6
7	SPARE	--	20 A	1			0	1800	1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, NORTH CENTER	8
9	SPARE	--	20 A	1	0	1800			1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, NORTH WEST	10
11	SPACE	--	--	1			--	1800	1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, SOUTH WEST	12
13	SPACE	--	--	1	--	1800			1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, SOUTH CENTER	14
15	SPACE	--	--	1			--	1800	1	20 A	Receptacle	RCPT - BUILDING EXTERIOR, SOUTH EAST	16
17	<1> RCPT - 50A NORTH BUILDING EXTERIOR	Receptacle	50 A	2	4800	0			1	20 A	--	SPARE	18
19							4800	--	1	--	--	SPACE	20
				Total Load:	12675 VA		12138 VA						
				Total Amps:	106 A		101 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	813 VA	125.00%	1016 VA		
Receptacle	24000 VA	70.83%	17000 VA	**Total Conn. Load:**	24813 VA
				Total Est. Demand:	18016 VA
				Total Conn.:	103 A
				Total Est. Demand:	75 A

Notes:
<1> PROVIDE 5ma GFI BREAKER FOR PROTECTION

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CARBON COUNTY MONTANA
NEW SALT SHED
RED LODGE, MT

Date FEBRUARY 12, 2024
Issue CONSTRUCTION DOCUMENTS
Project Number 2022-36.1
Revisions

ELECTRICAL PLAN

E201

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Attachment 1

Salt

Dramatic increases in salt (sodium chloride) concentrations are occurring in freshwaters globally due to human activities such as road salt application, water softening, mining and oil extraction, wastewater from commercial and industrial processes, weathering of concrete, sea level rise, and fertilizer application. Too much salt in the environment is toxic and lethal to aquatic life, pollutes drinking water sources, and damages infrastructure.

Increased salt concentrations lead to a phenomenon called freshwater salinization syndrome (FSS). This syndrome is due to direct and indirect effects of salts that cause other pollutants in soil, groundwater, surface water, and water pipes to become more concentrated and mobile. One example of these effects is that salts can increase the rate of metals mobilizing from soils and pipes and can cause radioactive materials such as radium in soils to become more concentrated in groundwater and surface water. Excess nutrients in the soil like nitrate-nitrogen can also be mobilized by high salinity, thereby exacerbating nutrient pollution, which contributes to harmful algal blooms and low dissolved oxygen levels in lakes and rivers. Taken together, excess salts can make water undrinkable, increase the cost of treating water, and harm freshwater fish and wildlife.

Notice: Winter is Coming! And with it, tons of salt on our roads <https://epa.gov/snep/winter-coming-and-it-tons-salt-our-roads>... read more!

Related Links

- Chloride Resources Clearinghouse <https://neiwpcc.org/news-publications/chloride-resources-clearinghouse/#:~:text=the%20chloride%20resources%20clearinghouse%20is,epa's%20chloride%20technical%20management%20workgroup.>
- NPDES Stormwater Program <https://epa.gov/npdes/npdes-stormwater-program>
- Science Matters: Researching the Freshwater Salinization Syndrome <https://epa.gov/sciencematters/epa-researching-impacts-freshwater-salinization-syndrome>
- Stormwater Management and Green Infrastructure Research <https://epa.gov/water-research/stormwater-management-research>

SALT STORAGE HANDBOOK

Safe and *Sustainable* Salt Storage

SALTINSTITUTE.ORG


SALT

Salt Storage Handbook

Practical Recommendations for Storing and Handling Deicing Salt

*Dedicated to the people who provide safety and mobility on roads in winter — **the snowfighters***

PUBLISHED BY THE SALT INSTITUTE: The Salt Institute is a North American based non-profit trade association dedicated to advancing the many benefits of salt, particularly to ensure winter roadway safety, quality water and healthy nutrition. See saltinstitute.org and safewinterroads.org for more information.

Contents

Foreword

Clear winter roads protect lives and commerce. Road salting and effective plowing can reduce injury crashes by up to 88%. And a one-day major snowstorm that shuts down roads can cost a state between $300 and $700 million in direct and indirect costs.

Salt is a strategic winter resource that has been used for decades as a major weapon in combating ice and snow. Today nearly all agencies responsible for winter maintenance in the United States and Canada use salt as one of the major tools to protect lives and commerce.

Salt is the ideal deicing material because:

- ❄ It is effective
- ❄ It is readily available
- ❄ It is inexpensive (Deicing pays for itself within 25 minutes after salt is spread)
- ❄ It is easy to store and handle
- ❄ It is easy to spread
- ❄ It is non-toxic
- ❄ It is environmentally friendly when used and stored properly

Most deicing salt users are making every effort to employ effective strategies to ensure protection of the environment through proper storage and application practices, something we call sensible or sustainable salting.

Good salt storage facilities, with adequate capacity, guarantee sufficient salt is available to maintain safety and mobility for motorists, emergency vehicles, and commercial vehicles. Because salt is so vital, proper storage must be provided to protect it from the elements and to protect the environment. It is recommended that a one-year supply of salt is properly stored to prevent shortages, which will affect safety and commerce.

This Sustainable Salt Storage Handbook is provided by the Salt Institute as a resource to the agencies that protect citizens every day. It is provided in conjunction with the Salt Institute's Safe and Sustainable Snowfighting Award program that recognizes agencies that demonstrate effective strategies in salt storage and snowfighting. ❄

Why Bulk Storage?

Why should a public works agency use proper bulk salt storage facilities?

There are three answers - economy, availability and convenience.

Bulk salt is the most economical deicing material available. Initial cost is low. Handling and storage are simple. Spreading is fast and easy.

Salt never loses its ice melting power no matter how long it is stored or how old it is. Each year thousands of tons of salt are stored and carried over to be used the next year. It is just as effective as though freshly mined or harvested. Neither is there any loss to moisture from the air if salt is stored properly. Salt does not absorb moisture until the humidity exceeds 75 percent. Moisture that is absorbed will later evaporate, but there may be a thin crusting on the surface of the stockpile that is easily broken up.

Salt, however, can be lost to precipitation. Stockpiles, whether large or small, should never be left exposed to the elements - rain or snow. Storage should always be done on impermeable pads, either in a building or covered with one of the many types of temporary covering materials, such as tarpaulin, polyethylene, polyurethane, polypropylene or Hypalon. These materials are also available with reinforcement for added strength. Proper storage inside a building or under cover will also prevent possible detrimental effects on the environment. When salt is stored outside, runoff must be properly controlled.

Why Store Salt Properly?

Properly stored salt will:

- Prevent formation of lumpy salt that is difficult to handle with loaders and to move through spreaders,
- Eliminate the possibility of contaminating streams, wells or groundwater with salt runoff,
- Eliminate the loss of salt by runoff and dissolving by precipitation.

Anticaking Additives. The best way to prevent or minimize caking is to store salt under cover. Most salt producers add anticaking agents. However, if left exposed to weather, anticaking agents can be washed from the outer layer of salt.

Crushers. Avoid the necessity to use crushers to get rid of lumps in salt by storing salt under cover where anticaking agents will not be washed out and crusting will be minimal. Crushers are not always readily available and they can be costly.

Adequate bulk storage assures enough salt to fight winter storms, without the problem of arranging emergency shipments throughout the winter months.

How Much is Needed?

Order enough. Ideally, there should be storage room for at least 100% of the estimated average winter's salt requirements.

It is wise to take early delivery of winter supplies and store the material until it is needed. Suppliers do their best to maintain deliveries and service salt users from strategically located stockpiles. However, replenishment of salt stockpiles becomes difficult during heavy demand periods, such as during back-to-back winter storms. It is always best to keep your sheds full to eliminate large backlogs of orders at stockpiles, speeding deliveries.

How Much Salt Will Be Needed This Winter?

Estimating future salt requirements is tough. Few public works officials ever hit the figure right on the nose. Here are a few guidelines for estimating future salt needs:

1. Never reduce last winter's figure simply because you hope next winter will be milder. Make realistic estimates based on average needs over the previous five or ten-year period.
2. Understand the supply impact from the previous winter weather. Harsh, long winters deplete storage and affect salt demand for the following winter.
3. Be sure to take into account new mileage added to your road or street system. Don't overlook new subdivision streets, Interstate or express highways and routes acquired from other political subdivisions.
4. Improve winter maintenance operations. Going to straight salt, including applying liquid brine or pre-wet solids, or adding more salt routes can substantially influence salt requirements while providing a higher level of service.

Order Salt Early

Serious consideration should be given to the possibility of unseasonably cold temperatures, blizzard conditions, prolonged cold spells and unusually large amounts of snow. All of these conditions, though unpredictable, will affect your use of salt.

Use the chart below to figure approximate salt needs for your area.

TABLE 1: SALT REQUIRED PER SEASON

SHORT TONS/METRIC TONS

Based on 4 applications per storm Per 2-lane Mi/Km

Two Lane Highway on Bare Pavement

Number of Storms	Mi	100	200	300	400	500	600	700
	Km	161	322	483	644	804	965	1126
4		400	800	1200	1600	2000	2400	2800
		363	724	1089	1452	1814	2177	2540
6		600	1200	1800	2400	3000	3600	4200
		544	1089	1633	2177	2722	3266	3810
8		800	1600	2400	3200	4000	4800	5600
		726	1452	2177	2903	3629	4355	5080
10		1000	2000	3000	4000	5000	6000	7000
		907	1814	2722	3629	4536	5443	6350
12		1200	2400	3600	4800	6000	7200	8400
		1089	2177	3266	4355	5443	6532	7621
14		1400	2800	4200	5600	7000	8400	9800
		1270	2540	3810	5080	6350	7621	8346
16		1600	3200	4800	6400	8000	9600	11200
		1452	2903	4355	5806	7258	8709	9253
18		1800	3600	5400	7200	9000	10800	12600
		1633	3266	4899	6532	8165	9798	10524
20		2000	4000	6000	8000	10000	12000	14000
		1814	3629	5443	7258	9072	10886	12700

Plan your salt program early. Summer is best. Remember that your purchasing process can impose waiting periods between the time bid notices are advertised and a supplier is selected. Start your procurement process to allow sufficient time to take pre-season delivery.

Work with your salt supplier to take delivery in the summer or fall, taking advantage of logistics factors in your supplier's supply chain. Early delivery is generally better. It ensures a ready supply and allows your supplier to prepare a suitable stock point in your area. Salt cannot be transported up the Mississippi River, for example, once the waterways are frozen and winter closes most Great Lake ports.

Should in-season re-supply be required, re-order before on-hand inventories are depleted. Check inventory levels frequently and always before a forecasted storm. Agencies that plan ahead and have abundant storage capacity have an advantage.

Select the Right Site

The most critical step in providing good storage is selecting the storage site. S-A-L-T-E-D is the key word in picking the right spot.

S afety - Always make safety for workers and the general public a prime concern at a storage site. Equipment operators need good visibility in all directions. Access roads should not open directly into heavily traveled routes. Post signs to warn motorists that trucks enter and leave the area. Make sure the area is secure, preferably fenced, to prevent entrance by unauthorized persons. Children can be attracted by salt piles, which could be dangerous for them. It is also essential to secure the area in such a way as to provide safety for the surrounding environment.

If stored under tarps the tarps must be removed from loading and unloading area during activity to enable workers to see the pile and maneuver safely.

Make it safe!

A ccessibility - Storage sites should permit easy access by trucks and other equipment entering and leaving these areas during storms, when visibility is low. Plan accordingly.

The storage area must be large enough for front-end loaders to maneuver freely, safely and expediently. If stored in a building, make sure the doors and openings are large enough to prevent interference with loading and unloading. Provide easy accessibility for delivery trucks, keeping in mind the prevailing wind and weather pattern.

Keep it accessible!

L egality - You must comply with local zoning requirements, as well as local, state and federal regulations governing environmental discharge concerns.

Keep it legal!

Tidiness - Make storage facilities blend with local surroundings when possible, especially in residential areas. They should be well kept, with no junk or scrap material piled around that would give an impression of sloppiness or waste and allow the possibility of getting foreign objects in spreaders.

"Live" fences offer an attractive alternative to chain link or wood.

Salt spilled during delivery or loading must be cleaned up and returned to the storage structure as soon as possible.

Be a good neighbor. Keep it tidy!

Economics - Locate and distribute storage facilities so that empty trucks don't have to "dead-head" long distances to reload. This reduces operating costs and speeds up spreading operations.

Permanent covered storage is a good method. Unprotected piles waste salt and could be harmful to the environment.

Keep it economical!

Drainage - Locate all storage structures to provide good drainage away from the stockpile. Pads should have a slope of 1/4 inch per foot away from the center. Pads, aprons and other adjacent work areas should be capable of supporting the stockpile and equipment.

Ensure that your storage area does not accidentally drain into a freshwater reservoir, well or groundwater supply. If needed, curbs can be installed around the storage area to direct drainage or run-off.

All drainage should be properly contained. The brine collected can be reapplied to the stockpile during dry seasons or applied to spreader loads prior to street applications.

Before disposing of brine, contact state and local environmental or natural resources agencies for proper procedures.

Control and/or collect all drainage!

How Much Space Will It Occupy?

There is a limit to how much salt you can store in a given area. From certain facts about salt's physical characteristics, we can determine in advance how much space a known amount will occupy.

When deicing salt falls freely into a pile, it forms a cone with sides that slope at an angle of 32 degrees, salt's natural angle of repose. Other types and gradations of salt have slightly different angles of repose but are within one or two degrees.

The density of deicing salt ranges from 72 pounds per cubic foot loose to 84 pounds compacted. When calculating storage space requirements, use the figure of 80 pounds per cubic foot (equivalent to 1281.4 kg/m^3).

When using 80 pounds per cubic food, a cubic yard of salt weighs 2,160 pounds. Thus, a tone of salt would require 25 cubic feet of storage space (equivalent to 21.06 m^3/metric ton of salt).

All calculations in this publication are based on a density for salt of 80 pounds per cubic foot.

Space requirements in Stockpiles. It is possible to calculate the area requirements of any cone-shaped salt stockpile, since the slope of the pile is known.

Table 2 lists characteristics of conical salt piles containing varying amounts of salt. For example, look at the column for 1,000 tons of salt and read across to the right. This much salt, stored in a cone –shaped pile, will occupy a space of 67'1" in diameter, or 3,540 square feet and the length of its slope from ground to peak 40 feet. Volume of the pile would be 25,000 cubic feet. It would have an exposed surface area of 4,180 feet (important if you want to cover the pile and needed to know how much polyethylene, canvas or other covering material to order).

It is also possible to calculate the dimensions required for salt stored in a windrow shape with conical ends. Table 3 shows how much salt may be stored per running foot in windrows of various heights. Width requirements are also shown. For example, 2.4 tons of salt may be stored per running foot of a windrow-shaped pile with a base 19'4" wide and a height of six feet.

TABLE 2: STORING SALT IN CONICAL PILES

Salt Short Tons metric tons	Diameter of Pile ft m	Length of Space Occupied by Pile ft2 m2	Height of Pile ft m	Slope from Ground to Peak ft M	Volume of Pile In ft3 m3	Exposed Surface Area ft2 m2
24	19.33	295	6.0	11	600	339
21.8	5.89	27.41	1.83	3.35	17.00	31.49
50	24.67	479	8.0	15	1,250	565
45.4	7.52	44.50	2,44	4.57	35.38	52.49
80	28.92	655	9.0	17	2,000	773
72.6	8.81	60.85	2.74	5.18	56.60	71.81
100	31.17	765	10.0	18	2,500	904
90.7	9.50	71.07	3.05	5.49	70.75	83.98
200	39.33	1,213	12.5	23	5,000	143.2
181.4	11.99	112.69	3,81	7.01	141.50	133.3
300	45.00	1,595	14.0	27	7,500	1,877
272.2	13.72	148.18	4.27	8.23	212.25	174.37
400	49.42	1,916	15.5	29	10,000	2,260
362.9	15.06	178.00	4.72	8.84	283.00	209.95
500	53.33	2,240	17.0	32	12,500	2,640
453.6	16.25	208.10	5.18	9.75	353.75	245.26
600	56.67	2,530	18.0	34	15,000	2,980
544.3	17.27	235.04	5.49	10.36	424.50	276.84
700	59.58	2,790	18.5	35	17,500	3,290
635.0	18.16	259.19	5.64	10.67	495.25	305.64
800	62.33	3,050	19.5	37.8	20,000	3,610
725.8	19.00	283.35	5.94	11.28	566.00	335.37
900	64.83	3,310	20.5	38	22,500	3,900
816.5	19.76	307.50	6.25	11.53	636.75	362.31
1,000	67.08	3,540	21.0	40	25,000	4,180
907.2	20.45	328.87	6.40	12.19	707.50	383.32
2,000	84.50	5,620	26.5	50	50,000	6,630
1,814.4	25.76	522.3	8.08	15.24	1,415.00	615.93
3,000	96.83	7,380	30.5	57	75,000	8,710
2,721.6	29.51	685.60	9.30	17.37	2,122.50	809.6
4,000	106.50	8,880	33.5	63	100,000	10,470
3,628.8	32.46	824.95	10.21	19.20	2,830.00	972.66
5,000	115.00	10,370	36.0	68	125,000	12,230
4,536.0	35. 06	963.37	10.97	20.73	3,537.50	1,136.17
6,000	122.00	11,700	38.5	72	150,000	13,810
5,443.2	37.19	1,086.93	11.73	21.95	4,245.00	1,282.95
7,000	128.33	12,960	40.5	76	175,000	15,290
6,350.4	39.11	1,203.98	12.34	23.16	4,952.5 0	1,420.44
8,000	134.17	14,130	42.0	779	200,000	16,680
7,257.6	40.90	1,312.68	12.80	24.05	5,660.00	1,549.57
9,000	139.83	15,400	44.0	83	225,000	18,170
8,164.8	42.62	1,430.66	13.41	25.30	6,367.50	1,687.99
10,000	144.67	16,410	45.5	85	250,000	19,370
9,072.0	44.10	1,524.49	13.87	25.91	7,075.00	17,911.47

TABLE 3: STORING SALT IN WINDROWED PILES

Salt in Each Running Foot/Meter of Windrow

short tons metric tons	Width ft m	Exposed Surface Height ft m	Volume ft3 m3	Area ft2 m2
2.4 2.18	19.3 5.89	6.0 1.83	59 1.67	23 2.14
3.8 3.45	24.7 7.52	8.0 2.44	96 2.72	29 2.69
5.2 4.72	28.9 8.81	9.0 2.74	131 3.71	34 3.16
6.3 5.72	31.1 9.50	10.0 3.05	158 4.47	37 3.44
9.7 8.80	39.3 11.99	12.5 3.81	243 6.88	46 4.27
12.7 11.52	45.0 13.72	14.0 4.27	318 9.00	53 4.92
15.3 13.88	49.4 15.06	15.5 4.72	383 10.84	58 5.39
17.9 16.24	53.3 16.25	17.0 5.18	447 12.65	63 5.85
20.2 18.33	56.67 17.27	18.0 5.49	505 14.30	67 6.22
22.3 20.23	59.58 18.16	18.5 5.64	557 15.76	70 6.50
24.4 22.14	62.3 19.00	19.5 5.94	610 17.26	74 6.87
26.3 23.86	64.83 19.76	20.5 6.25	657 18.60	77 7.15
28.3 25.67	67.1 20.45	21.0 6.40	708 20.04	79 7.34
44.8 40.64	84.5 25.76	26.5 8.08	1,120 31.70	100 9.29
58.8 53.34	96.83 29.51	30.5 9.30	1,470 41.60	114 10.59
771.2 64.59	106.50 32.46	33.5 10.21	1,780 50.37	126 11.71
83.2 75.48	115.00 35.05	36.0 10.97	2,080 58.86	136 12.63
93.6 84.91	122.0 37.19	38.5 11.73	2,340 66.22	144 13.38
103.6 93.99	128.33 39.11	40.5 12.34	2,590 73.30	151 14.03
113.2 102.70	134.2 40.91	42.0 12.80	2,830 80.09	158 14.68
122.8 111.40	139.8 42.62	44.0 13.41	3,070 86.89	165 15.33
131.6 119.39	144.67 44.10	45.5 13.67	3,290 93.11	171 15.89

Table 3 gives the capacity only for the windrow section of the pile. Figure the dimensions of the cone-shaped end sections from Table 2.

Space requirements in buildings. To figure how much space will be required to store salt in a bin or building divide the weight in pounds of salt to be stored by 80 to obtain the number of cubic feet required and deduct the amount of space lost due to the slope of the pile in the front of the building.

The amount of storage space that cannot be used due to salt's "angle of repose" will depend upon the height of the pile and the width of the building. Her are some typical calculations:

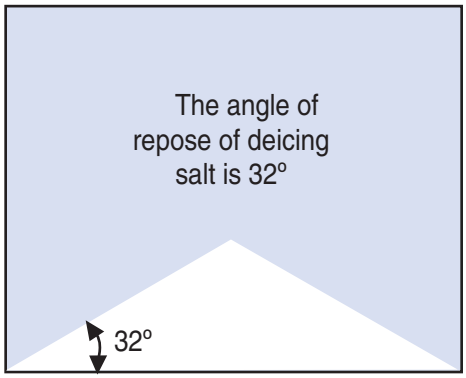
TABLE 4

Height of Pile ft m	Width of Bay ft m	Deduct This Amount short tons metric tons
8 2.44	12 3.66	24.4 22.14
10 3.05	12 3.66	38.2 34.66
12 3.66	12 3.66	54.9 49.81
15 4.57	12 3.66	85.8 77.84
20 6.10	12 3.66	152.6 138.44

H x H x W x 0.0318 = Lost Tonnage due to Angle of Repose

Thus, storage capacity of a building 30 ft wide and 40 ft deep, with salt piled ten ft high, would be 384 tons.

$$\frac{30 \times 40 \times 10 \times 80}{2000} - (10 \times 10 \times 30 \times 0.0318) = 384 \text{ Tons}$$



Put It On A Pad

Permanent, covered storage is recommended, particularly for small piles that are not actively managed. It is also acceptable to store salt in outdoor stockpiles on bituminous or concrete pads. This low-cost method provides maximum storage space and easy access. Whether stored inside or outside, salt always should be on a pad. If outdoor storage is used, it must be properly covered.

The pad site should be located away from wells, reservoirs and groundwater supplies, whenever possible. If pads are constructed of concrete, they must be high quality, air-entrained and treated with sealants, asphaltic-type coatings, or other treatments to keep salt out and prevent spalling. Total thickness of surface and base for asphalt pads will vary, depending upon the condition of the subgrade and weight to be supported. Any asphalt surfacing material used by highway departments is satisfactory.

Slope pads to let surface water drain away. Let local conditions control the direction of slope to avoid excessive grading. Minimum slope is one to two percent. For good drainage, install ditches, pipes and tile where necessary. In some cases, it may be necessary to install pipes, tiles or asphalt berms to channel water to a collection point, preferably a specially designed sump area.

Pads may later be framed on three sides to form a bin, or storage buildings may be erected over existing pads.

Put It Under Cover

Salt stored in bins or on pads outdoors may be covered with a variety of materials, including:

- Polyethylene
- Polypropylene
- Hypalon
- Polyurethane foam
- Water-resistant canvas
- Any other suitable waterproof cover (All of the above may be reinforced for added strength).

To join flexible coverings, lap and sew together with a two-inch standing seam, using a sewing machine suitable for such purpose. This gives a relatively waterproof and durable seam for most of these coverings. Taping of sewn seams improves waterproofing.

Industrial adhesive tapes may also be used to join coverings, but sewing is preferable.

Old tires (which are unacceptable in some places) or sand bags lashed together with rope or cable and placed uniformly over the flexible cover provide a suitable tie-down weighting method. Also available for tying covers are poly-cord nets. Be sure to weight down the base of the cover to keep wind from peeling covers off salt piles. Timbers or sand may be used.

A good method for covering smaller piles of deicing salt is the ground level storage shed or building. Storage structure size will vary with individual needs. There are as many types of storage buildings as there are ideas. Many agencies have developed their own particular style. Most buildings, of course, are let for bid, but there are also many that are built with spare or used materials and the agency's own labor.

Various pre-fabricated buildings are available. If building your own, storage buildings may be constructed of pressure treated timbers, assorted lumber, old bridge timbers and decking, concrete blocks, corrugated sheet metal or a variety of other materials on hand. Use treated posts and timbers in pole-type buildings. Make sure all hardware is galvanized. Tie corner posts of storage buildings together with underground galvanized cables with turnbuckles.

Concrete block buildings should be treated inside with a suitable sealant or coated with asphaltic material. In case of open ends, cover should be supplied for exposed salt.

A good, properly drained pad is just as important when salt is stored in a building as when stored on an open pad.

Doors on buildings must be high and wide enough to permit easy access by front-end loaders and delivery trucks. Door openings should be a minimum of 20 feet wide. Hinge doors to allow fastening in the "open" position so that high winds won't hinder operations. Buildings can be designed with doors at both ends.

Make sure any overhang in front of the building does not complicate truck unloading or loading.

Areas around the building must be well lighted. Inside of buildings, place lights to the side and high to keep from covering wiring or light fixtures with salt when the building is full to avoid corrosion damage.

Painting the inside of the storage facility with light-colored or white paint will enhance light reflectance, provide maximum visibility and may be a very worthwhile expense.

Build it strong

Wind and snow are enemies of storage buildings. For adequate building design, figure on a snow loading of 25 pounds or more per square foot of roof and winds of 80 miles per hour.

Think how often you have seen snow piled two to four feet deep on roofs, and windstorms with gusts of at least 80 mph. And remember that wind blowing through open sides or wide doors can cause pressure buildup inside the building, adding to stresses.

Provide building bracing and roof and wall anchorage to withstand internal wind pressure.

The following design considerations should be taken into account to allow for effects of wind and snow:

1. Location and Arrangement - Trees and other barriers may help shield a building against strong winds and snow, but putting a building too near a tree line may cause snow to accumulate around the building.
2. Foundation and Anchorage - Buildings tend to move with the wind; strong winds can lift a roof or collapse a wall. Buildings must be anchored securely to resist these pushing and lifting forces. Common mistakes are failing to anchor sills securely to foundations and using poles that are too small, too far apart or not embedded deeply enough.

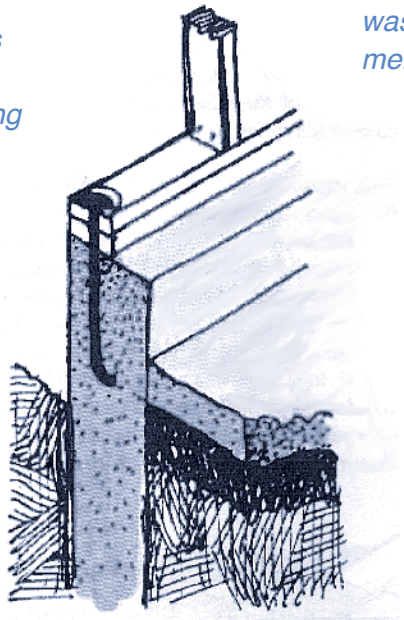
A good idea is to embed sound, pressure-treated poles four feet or more into undisturbed soil or set in concrete. Use closer pole spacings, heavier poles and deeper embedment for very high pole buildings.

3. Construction practices - Poor construction causes many building failures. Knee bracing may be skimpy, building crossties poorly located, joints poorly fastened or framing members too small.

Whole roof and wall sections may blow off as a unit because a building literally comes apart at the seams. Common failures occur when rafters give way at plate lines, building corners become detached, or purlin and nailing girts are pulled loose from their supports. Framing members may not support their full load because of splice failure, because too few or too small nails were used, or because toe-nailing was used instead of a joint connector device.

To anchor sills, use 1/2-inch anchor bolts 16 inches long. 12-inches deep in 6- or 8-inch poured concrete foundation. Space not over 5 feet. Use 1 3/4-inch round washers; two 2 x 4- or two 2 x 6-inch members for sill.

Allow adequate tie-down for fastening rafters to purlins. This is typical bracing. Rafters and purlin sizes will vary with building sizes and pole spacing during construction.



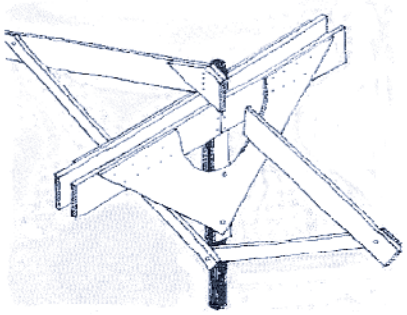
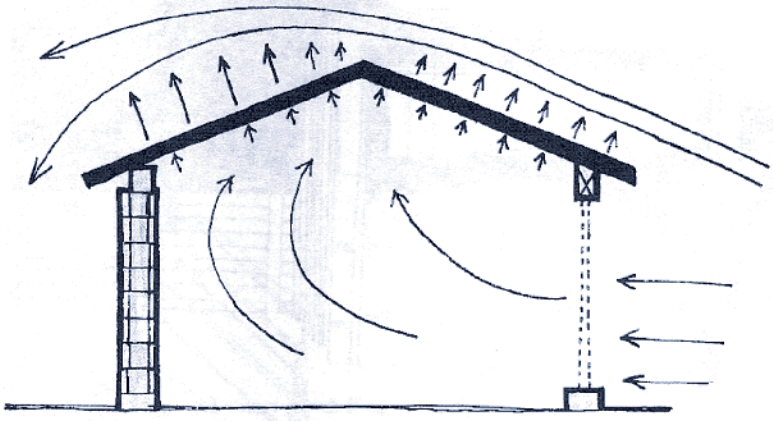


Diagram shows effect of wind blowing into open doors of a salt storage building.



Exterior bracing or earthen support may be required to prevent loaders from pushing the walls out. The salt alone creates some pressure on the walls, but the loader adds to the pressure when forcing its way into the pile. Another way to lessen pressure on outside walls is to build an interior bulkhead.

From the floor up, the pressure wall framing should be covered with 2" x 12" boards, which protect the supports from damage by loader buckets. Outside shed walls should be tongue-and-groove car siding. The roof should be of half-inch plywood topped with 90 pound roll roofing mineral surface.

Vehicle exhaust fumes can become noxious or hazardous if the storage facility is not properly ventilated. Sufficient ventilation must be provided to permit operation of a front-end loader and possibly a spreader truck in the case of large under-roof storage facilities. Forced ventilation should be installed in any building with a door opening smaller than the total width of the structure.

Receiving Salt

Shape the pile properly. For covered outside storage on a pad, the stockpile should be windrowed with well-sloped sides so all water will drain off and away from the pile. Ease of re-covering during the course of the winter should be considered in determining the height and overall size of the pile.

For in-building storage facilities, the most common method of filling is by dumping the salt directly in front of the building and pushing it inside with front-end loaders. Conveyors are sometimes used. Slingers, short conveyor belts, capable of throwing the salt some distance are used by some trucking firms. Use of either of these types of equipment requires sufficient volume in order to justify the cost of use. Where conveyors are installed in buildings, support structures and loadings should be carefully evaluated to avoid structural overloading and possible damage or failure. Taller structures (17 plus ft.) are now being built that will allow trucks to empty their load inside the building.

Delivery Tips

No matter how you store salt, it will likely be delivered to the site by truck. There are several ways to speed delivery.

Allow enough room for maneuvering. The average length of large trailer trucks that deliver deicing salt is 48 feet. Some are 55 feet long.

Room for turning and backing should be at least twice the length of the longest delivery truck entering the site.

When dumping, trailer beds may rise 30 feet above ground level. Allow for this when planning the front of storage buildings and when locating power lines and lights.

Provide enough support for heavy equipment. Large trailer trucks weigh up to 80,000 pounds when fully loaded. Total thickness of the pads and base in storage areas served by large loaders and trucks will vary, depending upon the condition of the subgrade.

Help truckers find the spot. A hard-to-find storage site may slow salt delivery. Place signs indicating locations of salt storage points and furnish maps and directions to truckers.

Don't keep truckers waiting. If a storage facility is properly designed, a truckload of bulk salt can be unloaded in three or four minutes. But truckers often stand idle waiting for someone to authorize delivery. These delays can be costly.

Generally, shipments cannot be unloaded unless a delivery ticket is signed. Make sure someone is available to accept and authorize deliveries.

Post names and telephone numbers of persons responsible for receipt of deliveries at storage areas.

Watch what you get. Salt is tested by suppliers for shipping weight. It is supplied in accordance with ASTM specification D-632, which is shown on pages 15-16.
If additional tests are necessary, try to make them quickly, using standardized equipment and procedures.

All trucks should be tarped with a secure cover during transit to prevent sifting, loss of salt and to keep salt dry.

The same trucks that deliver salt may haul other materials. Such foreign objects may damage spreaders and could occasionally get into salt.

Play it safe. Maintenance personnel should stay clear of the rear of trucks at all times. Night deliveries require special precautions. Clearly mark entrances to the storage site. Make sure yards and inside of storage facilities are adequately lighted. Place lights and wiring out of reach of raised truck beds and loaders.

Work Safely

Not only is Safety the #1 listed concern in our S-A-L-T-E-D summary, worker safety merits additional suggestions to support a safe work environment.

Communicate

Open and forthright channels of communication need to be established and maintained between employees and supervisors, and between employees. Employees must be encouraged to take responsibility for their own safety and participate in all efforts to improve the overall safety of the facility. Employees must be able to report to management any unsafe or questionable environmental condition without fear of reprisal, and must be encouraged to make recommendations to correct and improve those concerns. Employees must be provided with opportunities to attend safety meetings and task training to improve their knowledge, and encouraged to participate in the facility's safety program. Management must act as a role model by adhering to all environmental, safety, and health rules and all regulatory requirements governing the site.

General Safety

Salt storage facility employees need to adhere to general industrial safety rules. These include:

- Inspect mobile equipment for hazards and determine safe operating condition before use.
- Do not operate equipment or perform new tasks until properly trained by a qualified person.
- Wear appropriate personal protective equipment to protect against the hazards that exist in the work area. Wear seat belts when operating mobile equipment.
- Always "lock, tag and test" any equipment before you attempt to repair or troubleshoot.
- Follow required work practices and permit systems for electrical repairs or confined space entry.
- Immediately report all unsafe acts or conditions to a supervisor or manager. Immediately report any work related incident, injury or illness to your supervisor.
- Practice good housekeeping by keeping assigned work areas clean and orderly.
- Do not smoke in and around lubricant storage sites or refueling vehicles.
- Salt Stockpile Safety applies whether stockpile is inside or outside a building
- Never approach the vertical face of a stockpile on foot or in a vehicle closer than the vertical dimension of the pile; it might collapse and cover you in an avalanche.
- Never park next to a stockpile or next to loaders or other equipment working a stockpile.
- Never position yourself between the face of a stockpile and an immovable object (such as a loader or other vehicle).
- When working on top of a stockpile, never approach the crest closer than 15 feet.
- Always ensure that you have proper footing when accessing the top of a stockpile, and always be alert for sinkholes or other openings in the surface of the pile.
- Tarped stockpiles must be partially and strategically uncovered during loading and unloading to enable workers to see the pile face and maneuver safely.

Belt Conveyor and Screw Conveyor Safety

- Employees must be especially careful when operating and working around conveyors - especially when in close proximity to head and tail pulley, idler pulleys, and take-up pulleys.
- Conveyors must be equipped with emergency stop devices or pull cords. These emergency stop devices and pull cords must be checked regularly to ensure they are in working order.

Electrical Safety

- Conveyors must never be operated unless all guards are in place and securely fastened. Screw conveyors must never be operated unless top covers are in place and secured.
- Employees must never walk on top of a screw conveyor. Employees must never step onto or ride an operating conveyor belt.
- Before making repairs to a conveyor, it must always be de-energized and then locked, tagged and tested to ensure that it will not start unexpectedly. Employees must never attempt to apply belt dressing, or to lubricate an operating conveyor, unless protected by guards and a remote system has been installed to facilitate these procedures.
- Only employees who are properly trained should be allowed to work on electrical equipment.
- Employees must be alert for electrical hazards and make an immediate report to their supervisor when electrical hazards are identified.
- Always treat de-energized electrical equipment and conductors as energized until lockout/tagout, grounding, and testing procedures are implemented to verify a zero energy state.
- Determine the reason for fuse and breaker trips before resetting circuits.

Summary

The proper storage of salt is extremely important. Protection of salt and the surrounding environment, and ease of handling salt, are necessary and can be ensured through proper storage of salt either under roof or by covering outside stockpiles.

Street and highway maintenance agencies should make a continuous effort to provide good salt storage. Good storage also must include proper maintenance of facilities and good housekeeping practices.

Storage capacity for 100% of your average winter's needs can help eliminate the need for delivery during critical storm periods and will ensure that salt is available when needed.

Good planning is essential to good storage and proper storage is a vital part of Sustainable Snowfighting.

English/Metric Conversion Chart

METRIC TO ENGLISH

Multiply When You Know	English by	to Find	Symbol
millimeters	0.0394	inches	in
centimeters	0.394	inches	in
meters	3.281	feet	ft
meters	1.0936	yards	yd
kilometers	0.6214	miles	mi
square centimeters	0.1550	square inches	in^2
square meters	10.7639	square feet	ft^2
square meters	1.1959	square yards	yd^2
hectare	2.4711	acres	
square kilometers	0.3861	square miles	mi^2
cubic centimeters	0.0611	cubic inches	in^3
cubic meters	35.3147	cubic feet	ft^3
cubic meters	1.3078	cubic yards	yd^3
milliliters	0.0338	ounces (fluid)	oz
liters	2.1135	pints (fluid)	pt
liters	1.0567	quarts (fluid)	qt
liters	0.2641	gallons	gal
liters	1.8162	pints (dry)	pt
liters	0.9081	quarts (dry)	qt
cubic meters	28.3776	bushels	bu
grams	0.0352	avoirdupois ounces	avdp oz
kilograms	2.2046	avoirdupois pounds	avdp lb
metric tons (2204.6 lbs	1.1023	short tons (2000 lbs)	tn
metric tons	0.9842	long tons (2240 lbs)	t

(Celsius temperature x 1.8) + 32 = Fahrenheit temperature

ENGLISH TO METRIC

Multiply When You Know	Metric by	to Find	Symbol
inches	25.4	millimeters	mm
inches	2.54	centimeters	cm
feet	0.3048	meters	m
yards	0.9144	meters	m
miles	1.609	kilometers	km
fathoms	1.8	Meters	m
square inches	6.4516	square centimeters	cm^2
square feet	0.0929	square meters	m^2
square yards	0.8361	square meters	m^2
acres	0.4047	hectares	ha
square miles	2.5899	square kilometers	km^2
cubic inches	16.3871	cubic centimeters	cm^3
cubic feet	0.0283	cubic meters	m^3
cubic yards	00.7645	cubic meters	m^3
ounces (fluid)	29.5737	milliliters	mL
pints (fluid)	0.4732	liters	L
quarts (fluid)	0.9463	liters	L
gallons	3.7853	liters	L
pints (dry)	0.5506	liters	L
quarts (dry)	1.1012	liters	L
bushels	0.0352	cubic meters	m^3
bushels	35.2381	liters	L
avoirdupois ounces	28.3495	grams	g
avoirdupois pounds	0.4536	kilograms	kg
short tons (2000 lbs)	0.9072	metric tons (2204.6 lbs)	mt
long tons (2240 lbs)	1.0160 t	metric tons	mt

(Fahrenheit temperature -32) x 0.5555 = Celsius temperature

Appendix/Salt Specification

When ordering, specify sodium chloride as ASTM Designation: D632 or AASHTO M143. Do not specify year so the current specification will automatically be followed.

AASHTO Designation M143 complies with ASTM D-632.

STANDARD SPECIFICATION FOR SODIUM CHLORIDE: ASTM DESIGNATION D632

This Standard is issued under the fixed designation D632; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (e) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers sodium chloride intended for use as a deicer and for road construction or maintenance purposes.

1.2 The values stated as SI units are to be regarded as the standard.

1.3 The following precautionary caveat pertains only to the test method portion, Section 9 of this specification: This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:

C 136 Method for Sieve Analysis of Fine and Coarse Aggregates2

E 11 Specification for Wire-Cloth Sieves for Testing Purposes2

E 534 Methods for Chemical Analysis of Sodium Chloride3

3. Classification

3.1 This specification covers sodium chloride obtained from natural deposits (rock salt) or produced by man (evaporated, solar, other) and recognizes two types and two grades as follows:

3.1.1 Type 1 - Used primarily as a pavement deicer or in aggregate stabilization.

3.1.1.1 Grade 1- Standard gradation (Note 1).

3.1.1.2 Grade 2 - Special gradation (Note 1).

3.1.2 Type 11- Used in aggregate stabilization or for purposes other than deicing.

Note Grade 1 provides a particle grading for general application, and found by latest research to be most effective for ice control and skid resistance under most conditions. Grade 2 is the grading typical of salt produced in the western U.S. and available in states of the Rocky Mountains Region and west which may be preferred by purchasers in that area.

4. Sodium Chloride Requirements

4.1 The sodium chloride shall conform to the following requirement as to chemical composition:

Sodium Chloride (NaCl), min %, 95.0

5. Physical Requirements

5.1 Gradation:

5.1.1 Type 1- The gradation of Type 1 sodium chloride, when tested by means of laboratory sieves, shall conform to the following requirements for particle size distribution:

	Weight % Passing	
Sieve Size	**Grade 1**	**Grade 2**
19.0 mm (3/4 in.)	–	100
12.5 mm (1/2 in.)	100	–
9.5 mm (3/8 in.)	95 to 100	–
4.75 mm (No. 4)	20 to 90	20 to 100
2.36 mm (No. 8)	10 to 60	10 to 60
600 mm (No. 30)	0 to 15	0 to 15

5.1.2 Type 11-The gradation of Type II sodium chloride shall conform to the grading requirements imposed or permitted by the purchaser under conditions of the intended use.

6. Permissible Variations

6.1 In the case of sodium chloride sampled after delivery to the purchaser, tolerances from the foregoing specified values shall be allowed as follows:

6.1.1 Gradation-5.0 percentage points on each sieve size, except the 12.5 mm (1/2 in.) and 9.5 mm (3/8 in.) for grade 1 and 19.0 mm (3/4 in.) for grade 2.

6.1.2 Chemical Composition 0.5 percentage point.

7. Condition

7.1 The sodium chloride shall arrive at the purchaser's delivery point in a free-flowing and usable condition.

8. Sampling

8.1 Not less than three sample increments shall be selected at random from the lot (Note 2). Each increment shall be obtained by scraping aside the top layer of material to a depth of at least 25 mm (1 in.) and taking a 500-g (approximately 1-lb) quantity of sodium chloride to a depth of at least 150 mm (6 in.). Sampling shall be done by means of a sampling thief or other method which will assure a representative cross section of the material. The sample increments shall be thoroughly mixed to constitute a composite sample representative of the lot.

Note 2: A lot may be an amount agreed upon between purchaser and supplier at the time of purchase.

9. Test Methods

9.1 *Chemical Test*-Test for compliance with the requirements for chemical composition shall be in accordance with the following methods:

9.1.1 *Routine Control* -The "Rapid Method" provided in Annex A1 may be used for routine control and approval.

9.1.2 *Referee Testing*-In case of controversy, determine analysis in accordance with Methods E534.

9.2 Gradation shall be determined by Method C136.

10. Inspection

10.1 The purchaser or his representative shall be provided free entry and necessary facilities at the production plant or storage area if he elects to sample sodium chloride at the source.

11. Rejection and Rehearing

11.1 The sodium chloride shall be rejected if it fails to conform to any of the requirements of this specification.

11.2 In the case of failure to meet the require¬ments on the basis of an initial sample of a lot represented, two additional samples shall be taken from the lot and tested. If both additional samples meet the requirements, the lot shall be accepted.

12. Packaging and Marketing

12.1 The sodium chloride shall be delivered in bags or other container acceptable to the purchaser, or in bulk lots. The name of the producer and the net weight shall be legibly marked on each bag or container, or, in the case of bulk lots, on the shipping or delivery report.

13. Keywords

13.1 salt; snow and ice removal; sodium chloride; stabilization; winter maintenance.

[1] This specification is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee DO4.31 on Calcium, Sodium Chlorides and Other Deicers.

[2] *Annual Book of ASTM Standards*, Vol 04.02.

[3] *Annual Book of ASTM Standards*, Vol 11.01.

[4] *Annual Book of ASTM Standards*, Vol 14.02.

[5] *Annual Book of ASTM Standards*, Vol. 14.04.

[6] *Annual Book of ASTM Standards*, Vol. 15.05.

[7] *Reagent Chemicals*, American Chemical Society, Washington, DC. For suggestions on testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia* and the *National Formulary*, U.S. Pharmacopcial Convention, Inc., (USPC), Rockville, MD.

[8] Supporting data have been filed at ASTM Headquarters, Request RR: D04. 1016.

[9] These numbers represent respectively, the (ls %) and (d2s %) limits, as described in Practice C670.

ANNEX

(Mandatory Information)

A1 RAPID METHOD OF ANALYSIS FOR SODIUM CHLORIDE

A1.1 Scope

A1.1.1 This annex covers a rapid method for chemical analysis of sodium chloride.

A1.2 Significance and Use

A1.2.1 The procedure for chemical analysis in this annex determines the total amount of chlorides present in the sample and expresses that value as sodium chloride.

A1.2.2 This rapid method of analysis does not distinguish between sodium chloride and other evaporite chloride compounds with ice-melting capabilities. Typical rock salt and solar salt sometimes contains small amounts of $CaCl_2$, $MgCl_2$, and KCl, depending on the source of the material. When this rapid method is used on continuing shipments from a known source, it will provide a fast, essentially accurate determination of the sodium chloride content of the material furnished. Thus the need for testing by the referee method, Test Method E 534 is reduced.

A1.3 Apparatus

A1.3.1 *Glassware*-Standard weighing bottles, volumetric flasks (conforming to Specification E 288, Class B- or better), and burets (conforming to Specification E 287, Class B- or better).

A1.3.2 *Balance*, having a capacity of at least 20 g, accurate and readable to 0.01 g.

A1.4 Reagents

A1.4.1 *Purity of Reagents*-Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.7 Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

A1.4.2 *Purity of Water*-Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Types I-IV of Specification D 1193.

A1 .4.3 *Calcium Carbonate ($CaCO_3$)*-low chloride, powder.

A1.4.4 *Nitric Acid (HNO_3)*-dilute (HNO_3:H_2O, 1:4 by volume).

A1.4.5 *Potassium Chromate (K_2CrO_4) Solution*-(50 g K_2CrO_4/L).

A1.4.6 *Silver Nitrate Solution*-0.05 N $AgNO_3$.

A1.4.7 *Sodium Chloride (NaCl).*

A!.5 Procedure

A1.5.1 Thoroughly mix the composite sample obtained under 8.1, and reduce by quartering or by means of a sample splitter to approximately 500 g. Pulverize the reduced sample to pass a 300 µm (no. 50) sieve.

A1.5.2 *Standardization*-Standardize the silver nitrate ($AgNO_3$) solution daily, using 10 g of reagent grade sodium chloride (NaCl) following the applicable procedure in A1.5.3.

A1.5.3 From the pulverized sodium chloride, obtain a test sample with a mass of 10.00 ± 0.01 g and place in a beaker with 250-mL distilled water. Add 10 mL of the diluted nitric acid solution (HNO_3, 1 + 4 by volume) and stir for 20 min at room temperature to put the salt in solution. Transfer the solution, including any insoluble material, to a 2-L volumetric flask, dilute to the mark with distilled water, and mix. With a pipet, draw off 25 mL of the solution and place in a white porcelain casserole. Add 0.5 g of calcium carbonate ($CaCO_3$) to neutralize the excess HNO_3, and adjust the pH to approximately 7. Add 3 mL of the potassium chromate (K_2CrO_4) solution as an indicator and titrate dropwise with the silver nitrate ($AgNO_3$) solution until a faint but distinct change in color occurs—a persistent yellowish brown endpoint (see Note A1.1), comparable to standardization. Estimate the titer from the buret to the second decimal place.

Note: A1.1—The stirred sample solution, after addition of potassium chromate (K_2CrO_4) and calcium carbonate ($CaCO_3$) is a creamy lemon-yellow color. Addition of the silver nitrate ($AgNO_3$) solution produces silver chloride, which begins to agglomerate as the titration progresses, and the lemon-yellow color will begin to have whitish opaque swirls of silver chloride. As the titration proceeds, the red color formed by addition of each drop begins to disappear more slowly. Continue the addition dropwise until a faint but distinct change in color occurs and the yellow-brown to faint reddish-brown color persists. The first stable presence of red silver chromate is the end point. If the endpoint is overstepped, a deep reddish-brown color occurs.

A1.6 *Calculate*-Calculate the total chlorides expressed as percent NaCl as follows:

P = [(A/B) x (C/D)] x 100 (A1.1) Where:

A = reagent grade NaCl used, g,

B = 0.05 N $AgNO_3$ solution required to titrate the reagent grade NaCl, mL,

C = 0.05 N $AgNO_3$ solution required to titrate the sample being tested, mL,

D = test sampling mass, g, and

P = total chlorides expressed as sodium chloride in the sample being tested, %.

A1.6.1 If moisture is apparent in the sample, dry a duplicate 10-g sample of the pulverized salt at 105° C and correct the mass of the sample accordingly.

A1.7.1 Precision and Bias

A1.7.1 *Precision* [8] –An interlaboratory study was conducted and an analysis was made that included three materials ranging from approximately 92 to 99 % NaCl. Ten laboratories were included in the study.

A1.7.2 *Single-Operator Precision* (NaCl composition 95.0 % and greater)—The single-operator standard deviation of a single test result for average NaCl composition 95.0 % and greater has been found to be 0.248.9 Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 0.70 %.[9]

A1.7.3 *Multilaboratory Precision* (NaCl composition 95.0 % and greater)—The multilaboratory standard deviation of a single test result for average NaCl composition greater than 95.0 % has been found to be 0.633 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 1.79 %.[9]

A1.7.4 *Single Operator Precision* (NaCl composition 95.0 % and greater than 90.0 %)— The single-operator coefficient of variation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.427 %.[9] Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 1.21 %.[9]

A1.7.5 *Multilaboratory Precision* (NaCl composition less than 95.0 % and greater than 90.0 %)—The multilaboratory standard deviation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.711 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 2.00 %.[9]

A1.7.6 *Bias*—No justifiable statement can be made on the bias of this test method because the data are not available.

Considerations for Large Stockpiles

The logistics process whereby salt is delivered to road agencies requires that large stockpiles be established at major transshipment locations. This section addresses steps that can be taken to minimize contaminated storm water run-off and help ensure the sustainability of such stockpiles.

The large quantities of salt stored at such locations, and the fact that such locations may not be used solely for salt storage, means that permanent structures (i.e. buildings that provide complete cover) may not be a feasible solution for such stockpiles. Although permanent buildings may not be feasible, steps can still be taken to minimize loss of salt through storm water run-off. The following list presents a number of suggested actions that can be taken to minimize chloride runoff, thereby helping to ensure that these stockpiles are sustainable (i.e. that they balance the environmental, economic, and societal needs with respect to road salt).

- Stockpiles should either be placed indoors or covered with tarps as soon as practical given weather conditions. Stockpiles should remain covered with a tarp except for the portion where salt is being added or removed.
- Stockpiles should be placed on impermeable pads that allow storm water to drain away from the covered salt to be appropriately managed.
- Pads should be sized so as to allow not only salt storage but handling of the salt as it is transshipped from one mode of transportation (e.g. river barge) to another (e.g. truck for delivery to agency stockpiles). This means space must be provided for maneuvering by loading and unloading vehicles and equipment.
- Pads should be constructed in such a way that water cannot easily run onto the pad. This can be accomplished by use of some sort of curbing around the edge of the pad, for example.
- Pads and stockpiles should be constructed in such a way that when salt is not being loaded into or unloaded from the stockpile, the stockpile can be safely covered with a tarp (or a system of tarps). Note that since the purpose of such stockpiles is to enable transshipment of salt from one transportation mode to another, it is necessary that when such actions are being performed parts of the stockpile (where transshipment is occurring) will not be covered with a tarp. Trying to either load salt onto the stockpile or unload it from a stockpile underneath a tarp would be very dangerous and should not be attempted.
- Plans should be developed and followed to manage any salt contaminated run-off from the storage site, in keeping with an appropriate Storm Water Pollution Prevention Plan (SWPPP) developed for the site[1].

[1] SWPPPs are intended to be site specific documents that detail management practices implemented at a given geographic location to ensure that contaminated storm water runoff from the site is appropriately handled. Methods of handling the storm water runoff include (but are not limited to) utilization of berms, ditches, pipes (appropriately sized to handle a 100 year 24 hour storm event) and bioswales. Other solutions may of course be used in a plan to the degree that they are appropriate for a given location.

Publications Available
from the
Salt Institute

Refer to saltinstitute.org for further details and other literature

Snowfighter's Handbook

Manual for winter maintenance. Includes pre-winter planning, equipment scheduling and maintenance, special plowing and spreading problems and environmental considerations.

[Note: available on line in PDF format].

ABOUT THE SALT INSTITUTE: The Salt Institute is a North American based non-profit trade association dedicated to advancing the many benefits of salt, particularly to ensure winter roadway safety, quality water and healthy nutrition. See saltinstitute.org or call 703-549-4648.

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SALT

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Intex Prism Frame 1718 gal Round Metal Above Ground Pool 30 in. H X 12 ft. D

Shop all Intex Item # 8085153 | Mfr # 26711EH

Attachment 4

(0) Write Review

Roof water run off example

1" / RAIN / snow equivilant @ 62 gal / 100 SF of Roof

Roll over image to Zoom

approx 1800 +- gallons of water

Carbon County Fairgrounds – well located 226 Ft from South Fence

Carbon County Fairground – well located 381 Ft from South Fence

Carbon County Residential Development Process Checklist

Organization:	Carbon County Road and Bridge District #3		
Property Owner:	Carbon County		
Legal Description:	Lots 1-12, Block 69 of the Red Lodge Hymer Addition, Section 34, T 7 S, R 20 E		
Type of Permit:	Group 2 (Commercial)	**Date Received:**	4/2/2024

☒	**Group 2 Commercial Development Permit**			**Date Approved:**	5/21/2024
Permit Sent:	☐ **By Mail**	☒ **By Email**		**Date Mailed:**	5/22/2024
Payment:	☐ **Check (Mailed)**	☐ **Credit Card (Online)**		**Date Processed:**	N/A
☐	**Payment Processed**	**Amount:**	**$150 (G2)**	**Date Received:**	N/A

Other Permits that may be needed in addition to Group 2 Development Permit:

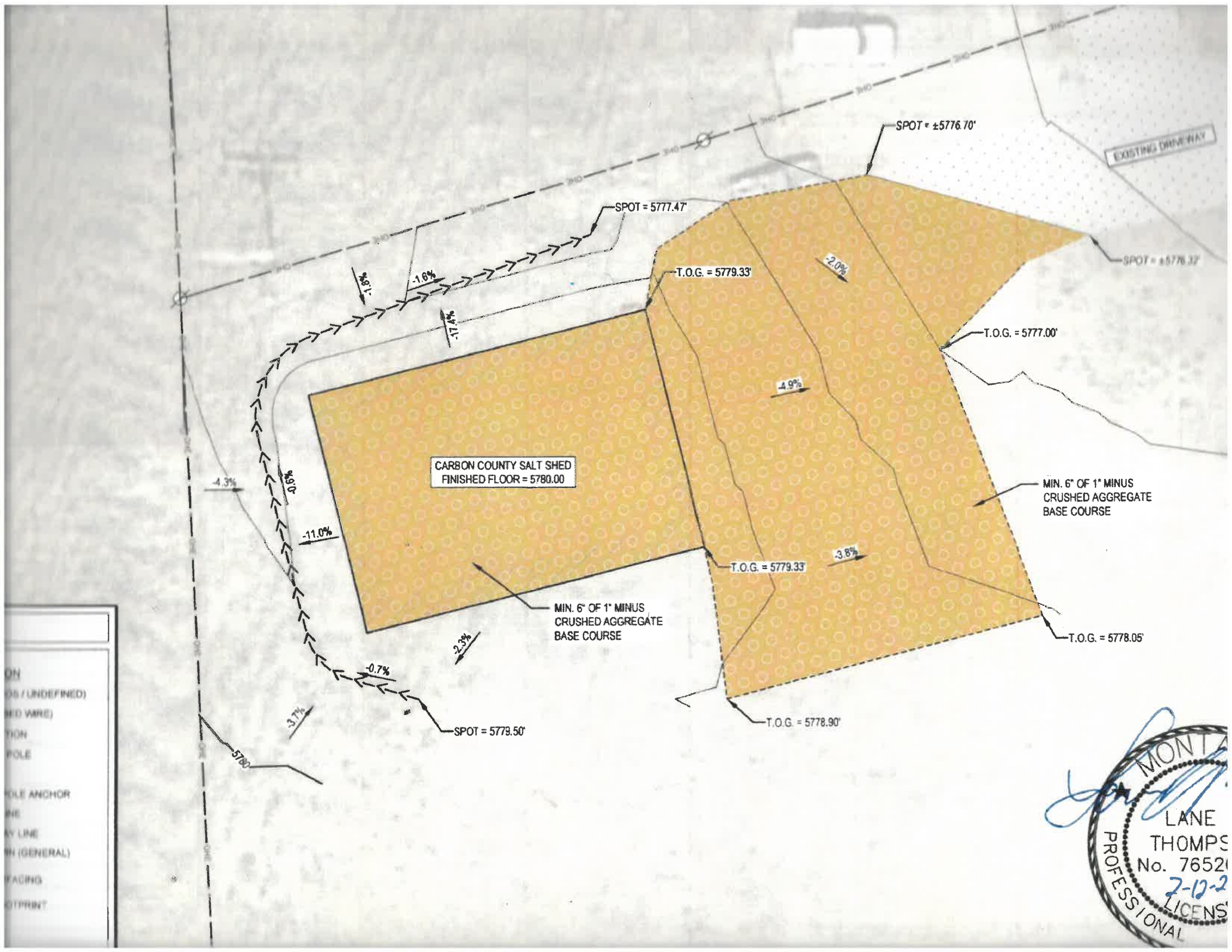
COMPLETED	PERMIT	STAFF COMMENTS
☐	**Road Approach** https://co.carbon.mt.us/departments/road-bridge/	
☐	**Rural Address** https://co.carbon.mt.us/departments/disaster-emergency-services/	
☐	**Floodplain** https://co.carbon.mt.us/departments/floodplain/	**No floodplain on property.**
☐	**On-Site Wastewater (Septic) Construction Authorization** https://co.carbon.mt.us/departments/sanitarian/	**No water/wastewater; therefore, no On-Site Wastewater Treatment (Septic) Permit necessary.**

Additional Comments:

Not located in mapped Sage Grouse habitat.

As there will be no water available, there is no need for an On-Site Wastewater Treatment Permit.

Approved subject to conditions (see approval letter).


SPOT = ±5776.70'
EXISTING DRIVEWAY
SPOT = 5777.47'
SPOT = ±5776.32'
T.O.G. = 5779.33'
T.O.G. = 5777.00'
-1.8%
-1.6%
-1.4%
-2.0%
-4.9%
CARBON COUNTY SALT SHED
FINISHED FLOOR = 5780.00
-4.3%
-0.6%
-11.0%
MIN. 6" OF 1" MINUS
CRUSHED AGGREGATE
BASE COURSE
T.O.G. = 5779.33'
-3.8%
MIN. 6" OF 1" MINUS
CRUSHED AGGREGATE
BASE COURSE
-2.3%
T.O.G. = 5778.05'
-0.7%
-3.7%
SPOT = 5779.50'
T.O.G. = 5778.90'
5780
LANE
THOMPS
No. 7652
7-10-2
LICENS
PROFESSIONAL

Rodeo Rd
34