TYRONE TOWNSHIP PLANNING COMMISSION
REGULAR MEETING AGENDA
January 9, 2024- 7:00 PM

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF THE AGENDA:

APPROVAL OF THE MINUTES: November 14, 2023

CALL TO THE PUBLIC:

OLD BUSINESS:

1) **Master Plan**
2) **Utility-Scale Solar Facilities**

NEW BUSINESS:

1) **Tyrone Party Store Site Plan Amendment**
2) **Election of Officers**

CALL TO THE PUBLIC:

MISCELLANEOUS BUSINESS:

ADJOURNMENT:

APPROVAL OF MINUTES

Draft Planning Commission Meeting Minutes-
November 14, 2023

TYRONE TOWNSHIP PLANNING COMMISSION
DRAFT MEETING MINUTES
November 14, 2023 7:00 p.m.

This meeting was held at the Tyrone Township Hall

PRESENT: Rich Erickson, Kurt Schulze, Garrett Ladd, and Steve Krause

ABSENT: Bill Wood, Kevin Ross & Jon Ward

CALL TO ORDER: The meeting was called to order at 7:00 by Chairman Erickson.

PLEDGE OF ALLEGIANCE:

APPROVAL OF THE AGENDA: Kurt Schulze moved to approve the agenda as presented. Steve Krause supported the motion. The motion carried.

APPROVAL OF THE MINUTES:

August 8, 2023: Kurt Schulze moved to approve the August 8th minutes as presented. Garrett Ladd supported. The motion carried.

September 12, 2023: Steve Krause moved to approve the September 12th minutes as amended; one typo needed correcting on page two. Kurt Schulze supported. The motion carried.

October 10, 2023: Steve Krause moved to approve the October 10th minutes as presented. Garrett Ladd supported. The motion carried.

CALL TO THE PUBLIC: Several public comments were heard.

NEW BUSINESS: DMN Properties Minor Change to Site Plan.

Ross Nicholson provided a summary of the request to the Planning Commission. The Planning Commission reviewed the application documents and the review letter provided by the Fire Authority having jurisdiction. The owner of one of the properties affected by this change spoke and asked that the Planning Commission approve the minor change. Steve Krause moved to recommend approval of the modified turnaround design to the Township Board with the condition that the conditions of the Hartland Deerfield Fire Authority review letter dated 11/07/2023 are complied with (No parking signs to be installed throughout the cul-de-sac). Kurt Schulze supported the motion. The motion carried by unanimous voice vote.

OLD BUSINESS: Utility-Scale Solar Facility Discussion

Planner Matteo Passalaqua briefed the Planning Commission on the latest status of state legislation controlling large-scale solar and wind facilities. He went through the existing draft ordinance text with the Planning Commission, making note of specific sections that may or may not be compliant with the new legislation. The Planning Commission directed Mr. Passalaqua to make changes to the draft, noting that the draft will need to be reviewed by a legal expert specializing in alternative energy before considering making a recommendation to the Township Board. They discussed adding language that addresses restoring property to its original condition once the solar facilities have been removed.

Once the draft is where the Planning Commission wants it, then it goes to legal review. There was a discussion on the overlay maps, battery storage, setback & height requirements, fencing & screening, and security. They talked about surety bonds. There was discussion about health, safety, and environmental concerns. They also discussed wind facilities. It was decided to allow the legal experts to help with the wind facility draft.

CALL TO THE PUBLIC: Several public comments were heard.

MISCELLANEOUS BUSINESS: Next workshop is tentatively scheduled for 11/21/23 at 6:00 pm.

ADJOURNMENT: The meeting was adjourned at 9:18 pm by Chairman Erickson.

OLD BUSINESS #1

Master Plan

(No documents attached)

OLD BUSINESS #2

Utility-Scale Solar Facilites

Proposed Amendments to Section 2 of the Tyrone Zoning Ordinance.

SECTION 2.02 SOLAR ENERGY GENERATION DEFINITIONS

ABANDONMENT: Any Utility-solar energy system or facility that is no longer producing power over a consecutive 12-month period of time.

DECOMMISSION: To remove and/or retire a Utility-scale solar energy system or facility from active service.

HEIGHT: The height of a Utility-scale solar energy system, measured vertically from the adjacent grade to its highest point at maximum tilt.

SOLAR ARRAY. A collection of solar panels, wired together to generate electricity from the sun.

UTILITY-SCALE SOLAR ENERGY FACILITIES. A facility where the principal design, purpose, or use is to provide energy to off-site uses or the wholesale or retail sale of generated electricity.

UTILITY-SCALE SOLAR ENERGY SYSTEMS. A device, and/or components designed to collect and transform solar energy into electricity.

Proposed Amendments to Section 22.05 Part T of the Tyrone Zoning Ordinance.

A. Utility-scale Solar Energy Facilities.

Utility-scale Solar Energy Facilities may only be permitted in Solar Overlay Districts, subject to the following conditions:

1. Regulations. The following regulations are intended to ensure the interests of the landowner and the Township are achieved harmoniously with no negative effect to the long-term viability of the subject property or those surrounding it. In the overlay zoning districts where this special land use is permitted, facilities for the capture, storage, and distribution of solar energy for commercial purposes are subject to the following standards:

a. Facility Boundary. The boundary around a parcel, multiple parcels, or portions thereof, leased or purchased for the purposes of operating a Utility-scale solar energy facility. The Facility Boundary may cross road rights-of-way, but required setbacks shall be provided and calculated on each side of any such road.

~~b.~~ **Setbacks.** The Utility-scale solar energy facility setback requirements are found in the table below. All accessory equipment shall be subject to the same requirements. Setback requirements for all yards may be increased or decreased by the Planning Commission based upon impacts to existing or likely adjacent development.

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District	Solar Overlay		
Adjacent Properties	Residential Land Uses	Place of Worship or Public Institutional Land Uses	All Other Land Uses
Front Yard Setback (adjacent to right-of-way)	300ft from nearest dwelling unit or 100ft from property line whichever is greater~~100ft~~	100ft from property line	50ft from property line
Side Yard Setback	300ft from nearest dwelling unit or 100ft from property line whichever is greater~~100ft~~	100ft from property line~~100ft~~	50ft from property line~~50ft~~
Rear Yard Setback	300ft from nearest dwelling unit or 100ft from property line whichever is greater~~100ft~~	100ft from property line~~100ft~~	50ft from property line~~50ft~~

In instances where the Utility-scale solar energy system is comprised of multiple parcels, these setbacks shall apply to the exterior perimeter of all adjoining parcels. All Setback distances are~~is~~ measured from the property line, or nearest point of a dwelling unit, to the closest point of the Utility-scale solar energy system. Should the nearest component of the Utility-scale solar energy system be a solar or photovoltaic array, the measurement shall be taken from the array at minimum tilt.

~~c.~~b. **Height.** The height of the Utility-scale solar energy system and any mounts, buildings, accessory structures, and related equipment must not exceed fifteen (15) feet when orientated at maximum tilt. Lightning rods may exceed fifteen (15) feet in height, but they must be limited to the height necessary to protect the Utility-scale solar energy system from lightning and clearly shown in site plan proposals.

~~d.~~ **Screening.** Greenbelt screening is required around the entire facility boundary perimeter of a Utility-scale solar energy facility to obscure, to the greatest extent possible, the Utility-scale solar energy system from all adjacent properties. Greenbelt standards set forth in Section

21A.04 Part C3 shall be applied to all Utility-scale solar energy facilities. Each owner, operator, or maintainer of any Utility-scale solar energy facility to which this ordinance applies shall utilize good husbandry techniques with respect to said vegetation, including but not limited to, proper pruning, proper fertilizer, and proper mulching, so that the vegetation will reach maturity as soon as practical and will have maximum density in foliage. Dead or diseased vegetation shall be removed and must be replanted at the next appropriate planting time. Plants or grasses not part of the buffer area shall be maintained by the facility operator not to exceed a height of twelve (12) inches. Applicant agrees to submit an acceptable and reasonable long term landscape maintenance plan prior to final approval.

Fencing. The facility boundary perimeter of a Utility-scale solar energy facility must be fenced per standards set forth in Section 21.13. Additional fencing or obscuring walls, as defined in Section 21A.10 may be required for screening in cases where the Planning Commission deems necessary. All fencing must comply with the latest version of the National Electrical Code.

~~e.~~c. **Glare.** Utility-scale solar energy systems must be placed and oriented such that concentrated solar radiation or glare does not project onto roadways and nearby properties. Applicants have the burden of proving any glare produced does not cause annoyance, discomfort, or loss in visual performance and visibility. An analysis by a qualified professional third-party, mutually agreeable by both the Township and applicant, shall be required to determine if glare from the Utility-scale solar energy system will be visible from nearby residents and roadways. The analysis shall consider the changing position of the sun throughout the day and year, and its influence on the Utility-scale solar energy system.

~~f.~~d. **Natural Feature Preservation.** The plan for installation of a Utility-scale solar energy facility shall include a tree survey and plan for cutting of trees greater than 6" DBA. No such trees shall be cut in any required setback other than those reasonably required for the installation of a drive to access the facility. Retention of natural grades, soils, and groundcover material is encouraged where feasible.

~~g.~~e. **Environmental Impact Analysis:** An analysis by a qualified professional third-party, mutually agreeable by both the Township and applicant, shall be required to identify and assess any potential impacts on the natural environment including, but not limited to, wetlands and other fragile ecosystems, historical and cultural sites, and antiquities. The applicant shall take appropriate measures to minimize, eliminate, or mitigate adverse impacts identified in the analysis.

An applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts. The applicant shall comply with applicable parts of the following:

Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 et seq.) including but not limited to:

Part 31 Water Resources Protection (MCL seq.),

Part 91 Soil Erosion and Sedimentation Control (MCL 324.9101 et seq.),

Part 301 Inland Lakes and Streams (MCL 324.30101 et seq.),

Part 303 Wetlands (MCL 324.30301 et seq.),

Part 323 Shoreland Protection and Management (MCL 324.32301 et seq.),

Part 325 Great Lakes Submerged Lands (MCL 324.32501 et seq.),

Part 353 Sand Dunes Protection and Management (MCL 324.35301 et seq.).

~~h.~~f. **Drainage and Stormwater.** Utility-scale solar energy facilities shall not increase stormwater runoff onto adjacent properties. The application shall include a drainage plan prepared by a registered civil engineer showing how stormwater runoff shall be managed and demonstrating that runoff from the site shall not exceed the agricultural runoff rate or otherwise cause undue flood. Any necessary permits from outside agencies for off-site discharge shall be provided. It should also be demonstrated that maintenance procedures and products will not introduce chemicals or create detrimental impacts to the natural environment, groundwater, and wildlife. Detergents should be of a biodegradable variety, and frequency of anticipated cleaning should be described.

Stormwater Study: An analysis by a qualified professional third-party, mutually agreeable by both the Township and applicant, shall be required to account for the proposed layout of the Utility-scale solar energy facility and how the spacing, row separation, and slope affects stormwater infiltration, including calculations for a 100-year rain-event (storm). Percolation tests or site-specific soil information shall be provided to demonstrate infiltration on-site without the use of engineered solutions.

g. **Lot Coverage.** The area of the Utility-scale solar energy facility and any associated accessory structures shall not exceed 75% of the square footage of the entire site within the facility boundary. Impervious surfaces for the purpose of calculating lot coverage for Utility-scale solar energy systems include, but are not limited to, mounting pads, footings, concrete or asphalt driveways and walkways, and accessory structures.

Abandonment, Removal, Repowering and/or Maintenance. If a Utility-scale solar energy facility ceases to perform its intended function (generating electricity) for more than 12 consecutive months, the operator shall remove the collectors, mounts, and associated equipment and facilities no later than 90 days after the end of the 12-month period. Where the removal has not been lawfully completed as required above, and after at least 30 days' written notice, the Township may remove or secure the removal of the Utility-scale solar energy facility and/or system or portion thereof, with the Township's actual cost and reasonable administrative charges to be covered by the operator's security bond. Charges may include the procurement of a contractor with the expertise to oversee and execute the entire decommissioning and removal of all equipment and fixtures on the site. Any costs incurred by the Township above and beyond the value of the security bond will be the responsibility of the operator.

If due to abandonment and/or negligence to maintain, the Township shall have the right to enter the site for the reason of repowering the facility, in cases where repairs or replacements to the Utility-scale solar energy system components are necessary, in order to properly maintain the system. The Township's actual cost and reasonable administrative charges to be covered by the operator's security bond. Charges may include the procurement of a contractor with the expertise to oversee and execute the entire set of repairs and/or maintenance to restore the site to its original capacity. Any costs incurred by the Township above and beyond the value of the security bond will be the responsibility of the operator.

~~i.~~h. **Decommissioning**. The ground shall be restored to its original condition within 60 days of removal of structures. The restoration will include returning all soil within the facility to its original environmental state of which record must be taken prior to the commencement of construction. Acceptable ground covers include grasses, trees, crops, or other material demonstrated to be characteristic of the surrounding land. All above and below ground materials shall be removed when the Utility-scale solar energy facility and/or system is decommissioned. All installed landscaping and greenbelts shall be permitted to remain on the

site as well as any reusable infrastructure as determined by the township. These can include service drives, utilities, etc.

~~j.~~i. **Surety. A letter of credit, cash deposit, or other security instrument found acceptable to the Tyrone Township Board.** The owner(s) and/or operator of the Utility-scale solar energy facility shall post a security instrument in a form acceptable to the Township equal to one-hundred fifty (150) percent of the total estimated decommissioning and/or reclamation costs. The cost of decommissioning shall be re-reviewed and submitted to the Township annually to ensure adequate funds are allocated for decommissioning. The security instrument, defined herein, shall be appropriately adjusted to reflect the current decommissioning estimate.

i. The applicant shall engage a certified professional engineer acceptable to the Township to estimate the total cost of decommissioning all structures in the facility in accordance with the requirements of this Ordinance, including reclamation to the original site conditions.

ii. A security bond, if utilized, shall be posted and maintained with a bonding company licensed in the State of Michigan or a Federal or State-chartered lending institution acceptable to the Township.

iii. Any bonding company or lending institution shall provide the Township with 90 days' notice of the expiration of the security bond. Lapse of a valid security bond is grounds for the actions defined in Subsection v., below.

iv. In the event of sale or transfer of ownership and/or operation of the Utility-scale solar energy facility, the security instrument shall be maintained throughout the entirety of the process.

v. If at any time during the operation of the Utility-scale solar energy facility or prior to, during, or after the sale or transfer of ownership and/or operation of the facility the security instrument is not maintained, the Township may take any action permitted by law, revoke the special land use, order a cessation of operations, and order removal of the structure and reclamation of the site.

vi. The security instrument shall be maintained until decommissioning and removal has been completed to the satisfaction of the Township.

~~k.~~j. **Wildlife Impact Analysis:** The applicant shall provide an analysis by a qualified professional third-party, mutually agreeable by both the Township and applicant, to identify and assess any potential impacts on wildlife and endangered species. The applicant shall take appropriate measures to minimize, eliminate, or mitigate adverse impacts identified in the analysis. The applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts. Sites requiring special scrutiny include wildlife refuges, other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally or state listed endangered species of birds and bats, significant bird migration pathways, and areas that have landscape features known to attract large numbers of raptors. At a minimum, the analysis shall include a thorough review of existing information regarding species and potential habitats in the vicinity of the project area. Where appropriate, surveys for bats, raptors, or general avian use should be conducted. The analysis shall include the potential effects on species listed under the federal Endangered Species Act and Michigan's Endangered Species Protection Law. The applicant shall follow all pre-construction and post-construction recommendations of the United States Fish and Wildlife Service. The analysis shall indicate whether a post-construction wildlife mortality study will be conducted and, if not, the reasons why such a study does not need to be conducted. Power lines should be placed underground, when feasible, to prevent avian collisions and electrocutions. All aboveground lines, transformers, or conductors should follow any Avian Power Line Interaction Committee (APLIC, http://www.aplic.org/) guidelines to prevent avian mortality.

~~l.~~k. **Provision of Manufacturers' Safety Data Sheet(s):** Applicant must submit manufacturer safety data sheets for all proposed equipment. If approval is granted, applicant must provide the Township with finalized manufacturer safety data sheets both to be kept on record at with the Township and on-site in a clearly marked waterproof container. Applicant must provide updated manufacturer data sheets whenever equipment is modified so that all records are up to date. Documentation shall include the type and quantity of all materials used in the operation of all equipment.

~~m.~~l. **Fire Response:** All electrical equipment associated with and necessary for the operations of the facility shall comply with all local and state codes. All design and installation work shall comply with all applicable provisions of the National Electrical Code (NEC).

The applicant shall provide training before, approximately halfway

through and after construction for all emergency service departments serving the Township. Including all other requirements for permits, all three trainings must have been completed to receive final permits. Trainings upon the completion and during the operation of the Utility scale solar energy facility will be conducted upon the request of all emergency service departments but not exceed four (4) trainings per any given twelve (12) month period.

The applicant shall provide a set of procedures and protocols for managing risk or fire and for responding in the event of an emergency at the facility. It will be the burden of the applicant to ensure said procedures and protocols provided to the various emergency service departments is the most up to date version.

Special equipment that may be required to ensure the safety of fire and rescue personnel when responding to an emergency at the facility shall be provided at no cost to the Township prior to commencement of construction of the facility. The authority to determine whether, and what type of, special equipment is needed shall be with the fire and/or rescue department(s) serving the Township.

The applicant shall provide for and maintain reasonable means of access for emergency services. Lock boxes and keys shall be provided at locked entrances for emergency personnel access. If any adjoining properties are damaged as a result of ingress/egress to the facility, the applicant shall remedy all damages in full.

~~n.~~m. **Anticipated Construction Schedule:** Applicant must provide an anticipated construction schedule which highlights when potentially hazardous materials will be brought on-site and installed.

~~o.~~n. **Permits:** Applicant must coordinate with all applicable agencies for required permitting including but not limited to the Livingston County Road Commission and/or Michigan Department of Transportation (MDOT) Livingston County Drain Commission, Environmental Protection Agency (EPA), Michigan Department of Environment, Great Lakes and Energy (EGLE), etc.

~~p.~~o. **Photographic Record:** Applicant must submit a complete set of photos and video of the entire development area prior to construction. This will be used as historical documentation for the township to secure and refer to if/when decommissioning and redevelopment activities take place.

~~q.~~p. **Herbicides:** Best practices when using herbicides (non-harmful to the environment) or other hazardous chemicals to control weeds, grass

and other unwanted vegetation shall be used.

~~f.~~g. **Batteries, Energy Storage Equipment and Accessory Equipment:** All batteries, energy storage equipment and accessory equipment are prohibited due to environmental hazard and emergency response concerns.

r. **Panel Type:** The solar and/or photovoltaic panels shall not contain harmful chemicals such as cadmium or amorphous silicon. Prior to construction, the applicant shall provide written panel specifications to include composition, toxicological information, and the physical and chemical properties of all panels used at the facility. Only biodegradable cleansers and water shall be used to clean panels.

s. **Noise:** The Utility scale solar energy facility may not generate a maximum sound in excess of 55 average hourly decibels as modeled at the exterior facility boundary. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

~~s.~~

2. **Site Plan Approval and Supporting Materials.** All applications for Utility-scale solar energy facilities must be accompanied by detailed site plans, drawn to scale and dimensioned and certified by a registered engineer licensed in the State of Michigan. All site plans shall conform to the requirements of Article 23. In addition they shall display the following information:

   a. All lot lines and dimensions, including a legal description of each lot or parcel(s) comprising the Utility-scale solar energy facility.

   b. Vicinity map showing the location of all surrounding land uses along the proposed site's property lines.

   c. Location and height of all proposed Solar Array(s), buildings, structures, electrical tie lines and transmission lines, security fencing, and all above-ground structures and utilities associated with a Utility-scale solar energy facility.

   d. Horizontal and vertical to scale drawings (elevations) with dimensions that show the location of the proposed Solar Array(s), buildings, structures, electrical tie lines and transmission lines, security fencing and all above ground structures and utilities on the property.

   e. Location of all existing and proposed overhead and underground electrical transmission or distribution lines within the Utility-scale Solar energy facility and within one hundred (100) feet of all facility

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boundary property lines of the Utility-scale solar energy facility. Use of above-ground lines shall be kept to a minimum.

f. Proposed setbacks from the Solar Array(s) to all existing and proposed structures within the Utility-scale solar energy facility and from the facility boundary property lines of the Utility-scale solar energy facility.

g. Topography for the Solar Array(s) location and the relationship to the land elevations of all existing and proposed structures within the Utility- scale solar energy facility at a minimum of two (2) foot contour intervals.

h. Access driveways within and to the Utility-scale solar energy facility, together with a detailed narrative regarding dimensions, composition, and maintenance of each proposed driveway. All access driveways shall be subject to Livingston County Road Commission (LCRC) approval and shall be planned so as to minimize the use of lands for that purpose.

i. Planned security measures to prevent unauthorized trespass and access during the construction, operation, removal, maintenance or repair of the Utility-scale solar energy facility. In no instance shall barbwire be used.

j. A written description of the maintenance program to be used for the Solar Array(s) and other components of the Utility-scale solar energy facility, including decommissioning and removal. The description shall include maintenance schedules, types of maintenance to be performed, and decommissioning and removal procedures and schedules if the Utility-scale solar energy facility is decommissioned. Description should include the average useful life of all primary Utility-scale solar energy system equipment and components being proposed.

k. Planned lightning protection measures.

l. A plan for reviewing and reasonably resolving complaints from the public or other property owners concerning the construction and operation of the Utility-scale solar energy facility, which is subject to the Township's review and approval.

m. A plan for managing any hazardous waste, which is subject to the Township's review and approval.

n. A transportation plan for construction and operation phases, including any applicable agreements with the Livingston County Road Commission and Michigan Department of Transportation, which is

subject to the Township's review and approval.

o. An attestation that the applicant will indemnify and hold the Township harmless from any costs or liability arising from the approval, installation, construction, maintenance, use, repair, or removal of the Utility-scale solar energy facility and/or system, which is subject to the Township's review and approval.

p. A security plan shall be submitted with the special land use application and site plan application for a Utility-scale solar energy facility. The security plan shall:

- Show all points of secured access as well as the means for limiting access to authorized personnel only.
- Along with other signage requirements in this ordinance, install and maintain warning signage on all dangerous equipment and facility entrances.
- Provide a schedule outlining the implementation and maintenance of site security as well as routine inspections to ensure site security infrastructure is intact and operating as intended.

q. Applicant shall provide proof showing all panels used at the facility are manufactured in the United States of America.

~~q.~~**r.** Additional detail(s) and information as required by the Tyrone Township Zoning Ordinance, or as required by the Planning Commission and/or Township Board.

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NEW BUSINESS #1

Tyrone Party Store Site Plan Amendment

RECEIVED

NOV 08 2023

TYRONE TOWNSHIP
PLANNING & ZONING

TYRONE TOWNSHIP
PLANNING COMMISSION REVIEW APPLICATION

Property Address / Location Tyrone Party Store at US-23 & Center Rd	Parcel ID/Zoning District 4704- 17-400-006
Property Owner(s) Mike Wood	Telephone (810) 629-7701
Street Address 9485 Center Road	Cell Phone (810) 691-7481
City / State and Zip ode Fenton (Tyrone Twp - Livingston Co) MIchigan 48430	FAX or E-Mail mjwood@Icloud.com
Authorized Agent Triumph Engineering	Telephone (810) 584-7364
Street Address 10775 S Saginaw St, Suite D	Cell Phone
City / State and Zip Code Grand Blanc MI 48439	

Type of Review:

- ____Boundary Realignment
- ____Concept Review
- ____Conditional Zoning
- ____Home Occupation
- ____Land Division
- ____Open Space Preservation
- ____Other
- ____Open Space Relocation
- ____Private Road/Shared Drive
- ____Planned Unit Development
- ____Public Hearing
- ____Rezoning
- ____Site Condominium
- _X_Site Plan Review
- ____Site Visit
- _X_Special Land Use
- ____Special Meeting
- ____Subcommittee Meeting
- ____Subdivision Plat

Project Description:

To renovate the existing automotive repair garage into a new carry out facility. The existing carry out will be availble for lease space.

Planning Commission applications should be filed with the Planning Commission Recording Secretary at least 14 days (21 days for land divisions/realignments) prior to review. Applications will not be scheduled for review until all information has been received. This Signature constitutes the applicant's acknowledgement of the application requirements and permission for site inspection by Tyrone Township representatives.

Michael Wood

Signature of Owner(s) or Authorized Agent

Date 11-8-23	Tax Status paid per	Fees:101-000000-607-006 CK#35138	Escrow: 701-000000-283- CK# 35135
Received By: KC	J.E. 11/8/23	$1650	$2000-

View the Tyrone Township Ordinance at <tyronetownship.us>

Z-Application - 12.2.13

Tyrone Township Escrow Agreement

This Escrow Agreement is for the cost of review, inspection and monitoring of the project of the Applicant. This includes, but not limited to:

a) The cost of the review of applications for approvals and variances;
b) Site Plan Reviews;
c) Any Planning Commission meetings;
d) Special meetings;
e) Reviews by Township Attorney and preparation of appropriate approving resolutions or ordinances;
f) Reviews by Township planner and/or engineer;
g) Publications and notices of public hearings or meetings;
h) Traffic studies;
i) Environmental impact studies;
j) Engineering Construction Reviews
k) Zoning administrator inspections and involvement;
l) Any other services or expenses relating to the application, inspection or monitoring processes incurred by the Township that are necessary and incident to the completion of the work or project.

Accordingly the Applicant shall pay, simultaneously with the execution of this Agreement, the sum of $ 2000.00 to be held in escrow by the Township to cover the aforementioned costs and expenses. The escrow deposits shall bear no interest.

If, during the project, the escrow balance falls below the amount necessary to complete the project, the Applicant shall make additional deposits sufficient to cover any deficit.

Any excess funds remaining in any escrow account after the project completion will be refunded to the Applicant less any administrative fees.

If the project costs and expenses exceed the amount remaining in the escrow after final project approval, the Township shall send the Applicant a statement for such additional costs. Until the Applicant pays for such costs, no further Township permits or approvals shall be issued.

TYRONE TOWNSHIP

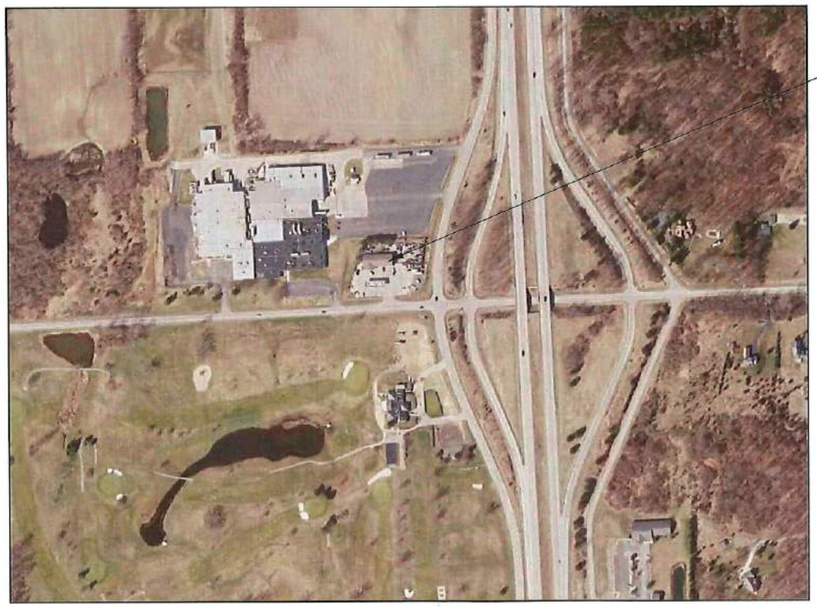
By: Karie Carter

Its: Tyrone Twp Zoning Administrator

APPLICANT

TYRONE PARTY STORE

9485 CENTER ROAD
FENTON, MICHIGAN 48430



NORTH

ARCHITECTURAL

A-0.1	COVER SHEET, DRAWING INDEX
A-1.0	CODES SHEET
A-1.1	FLOOR PLAN
A-1.2	ARCHITECTURAL INTERIOR SCHEDULE
A-1.3	ARCHITECTURAL EXTERIOR SCHEDULE
A-1.4	BARRIER FREE DETAILS
A-2.0	EXTERIOR ELEVATION
D-1.0	DEMOLITION PLAN

CIVIL

C-2.0	SURVEY PLAN
C-3.0	SITE PLAN

STRUCTURAL

S-100	STRUCTURAL NOTES
S-101	STRUCTURAL FRAMING PLAN
S-102	STRUCTURAL SECTIONS AND DETAILS

ELECTRICAL

E-100	ELECTRICAL POWER PLAN
E-101	ELECTRICAL LIGHTING PLAN
E-102	ELECTRICAL PANEL SCHEDULES AND RISER DIAGRAM
E-103	EMERGENCY LIGHTING PLAN

MECHANICAL

M-001	MECHANICAL NOTES
M-002	MECHANICAL NOTES
M-100	MECHANICAL FLOOR PLAN
M-101	MECHANICAL SCHEDULES

PLUMBING

P-001	PLUMBING NOTES
P-100	PLUMBING FLOOR PLAN
P-101	PLUMBING SCHEDULES

TRIUMPH
Triumph Engineering & Design, Inc.
10775 S. SAGINAW ST.
GRAND BLANC, MI 48439
(PH) 810.584.7364
(F) 810.584.7362

STATE OF MICHIGAN
JOSEPH D. TRIUMPH
No. 6201022031
REGISTERED PROFESSIONAL ENGINEER
8/7/23

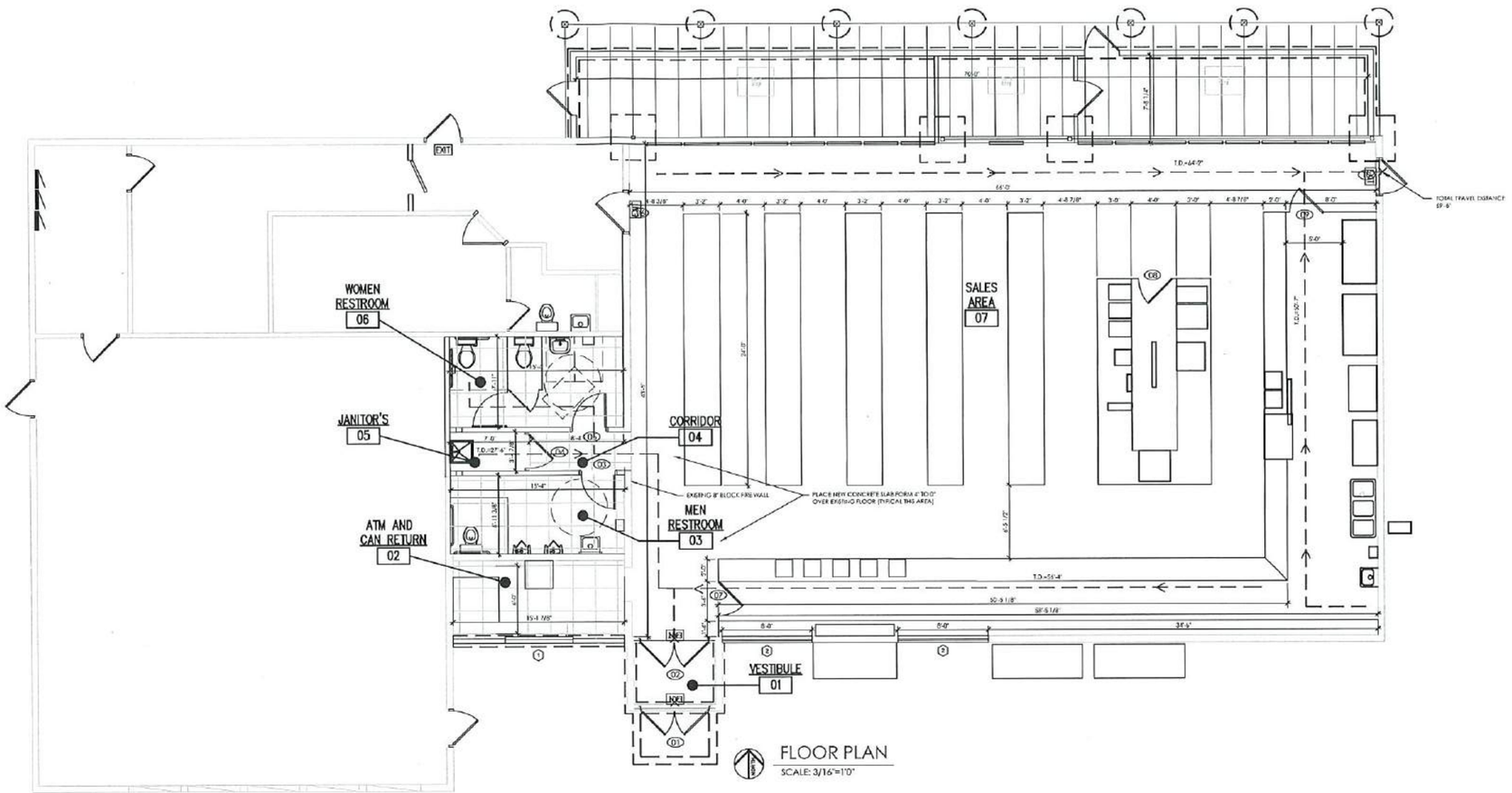
TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : JDL
CHECKED : JDT
SCALE : NONE
JOB NO : TE-22-168

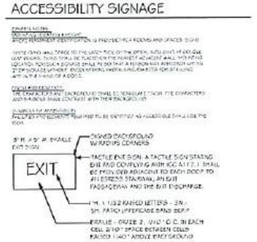
SHEET TITLE :
COVER SHEET
DRAWING INDEX

SHEET
A-0.1



FLOOR PLAN
SCALE: 3/16"=1'0"

WALL MOUNTED ADA ACCESSIBILITY SIGNAGE



TACTILE SIGNS - ICC/ANSI A 117.1

EGRESS PLAN LEGEND

—›— TRAVEL ROUTE FROM SPACE TO EXIT

‹| B |› EXIT DOOR, WITH PANIC HARDWARE, TACTILE SIGNAGE, EXPERIENCE LIGHTING UNIT / ILLUMINATED EXIT SIGN (MOUNTED ABOVE DOOR)

EGRESS NOTES

1. G.C. TO FURNISH + INSTALL NEW FIRE EXTINGUISHERS AS REQD BY LOCAL CODES, WHEN MOUNTING ADJACENT TO DOOR OPENING, MAINTAIN 12" CLEAR TO DOOR OPENING PER ADA COMPLIANCE. FINAL LOCATION, MOUNTING HEIGHT, & QUANTITY OF FIRE EXTINGUISHERS, G.C. TO VERIFY FIRE MARSHALL REQUIREMENTS FOR PROTECTION & TAGGING.

MEANS OF EGRESS

6 EXISTING EXIT DOORS = 33' / DOOR

TOTAL INCHES PROVIDED = 198'

133 OCCUPANTS x 0.15 = 19.95" REQD < 198" PROVIDED
198" / 0.15 = 1,320 OCCUPANTS > 133 OCCUPANTS (COMPLIANT)

MAXIMUM ALLOWED TRAVEL DISTANCE:
200' FOR 'F-1' OCCUPANCY WITHOUT SPRINKLER SYSTEM

MAXIMUM ACTUAL TRAVEL DISTANCE: 156'

OCCUPANCY (PER MBC TABLE 1004.1.2)

TOTAL BUILDING AREA: 2665 SF GROSS

USE/SPACE NAME	AREA	OCCUPANCY	SF / OCC	MAX. OCC
AGRICULTURAL SALES AREA	2665 SF	MERCANTILE	60	45

TOTAL MAXIMUM OCCUPANTS: 45

BUILDING CODE ANALYSIS

PROJECT: CONVENIENCE STORE - INTERIOR BUILD-OUT

APPLICABLE CODES: MBC 2015
ICC/ANSI 117.1-2009

MPC 2015
MMC 2015
IFGC 2015
NEC 2014 w/ Part 8 Amendments
IFC 2015 as referenced in the 2015 MBC
NFPA 13 2013
NFPA 72-2013

MBC 2015 Ch 13
MEC 2015 Ch 4 & Part 10.a Rules
(ANSI/ASHRAE 90.1-2013)

EXISTING INDUSTRIAL BUILDING

BUILDING CONSTRUCTION TYPE: TYPE II-B (EXISTING)
WALLS: 2XG STUDS + DRYWALL INTERIOR FINISH
ROOF: WOOD ROOF TRUSSES/JOISTS
FLOOR: CONCRETE SLAB
(NON-SPRINKLED)

BUILDING USE GROUP: M - MERCANTILE

PLUMBING FIXTURES (PER MPC TABLE 403.1)

F-1 FACTORY: WATER CLOSET: 1 MF per 100 OCC.
LAVATORY: 1 MF per 400 OCC.

REQUIRED: 1 MF WATER CLOSET
1 MF LAVATORY

PROVIDED: 2 MF BARRIER-FREE WATER CLOSET
2 MF BARRIER-FREE LAVATORY

MPC 403.2 Separate Facilities
Where plumbing fixtures are required, separate facilities shall be provided for each sex.
Exceptions: Separate facilities shall not be required for private facilities.

1 SERVICE SINK PROVIDED

TRIUMPH
Triumph Engineering & Design, Inc.
10775 S. SAGINAW ST.
GRAND BLANC, MI 48439
(PH) 810.584.7364
(F) 810.584.7362
www.MLarryfang.com

STATE OF MICHIGAN
MICHAEL J. LARRY FANG
No. 6201022031
LICENSED PROFESSIONAL ENGINEER
8/7/23

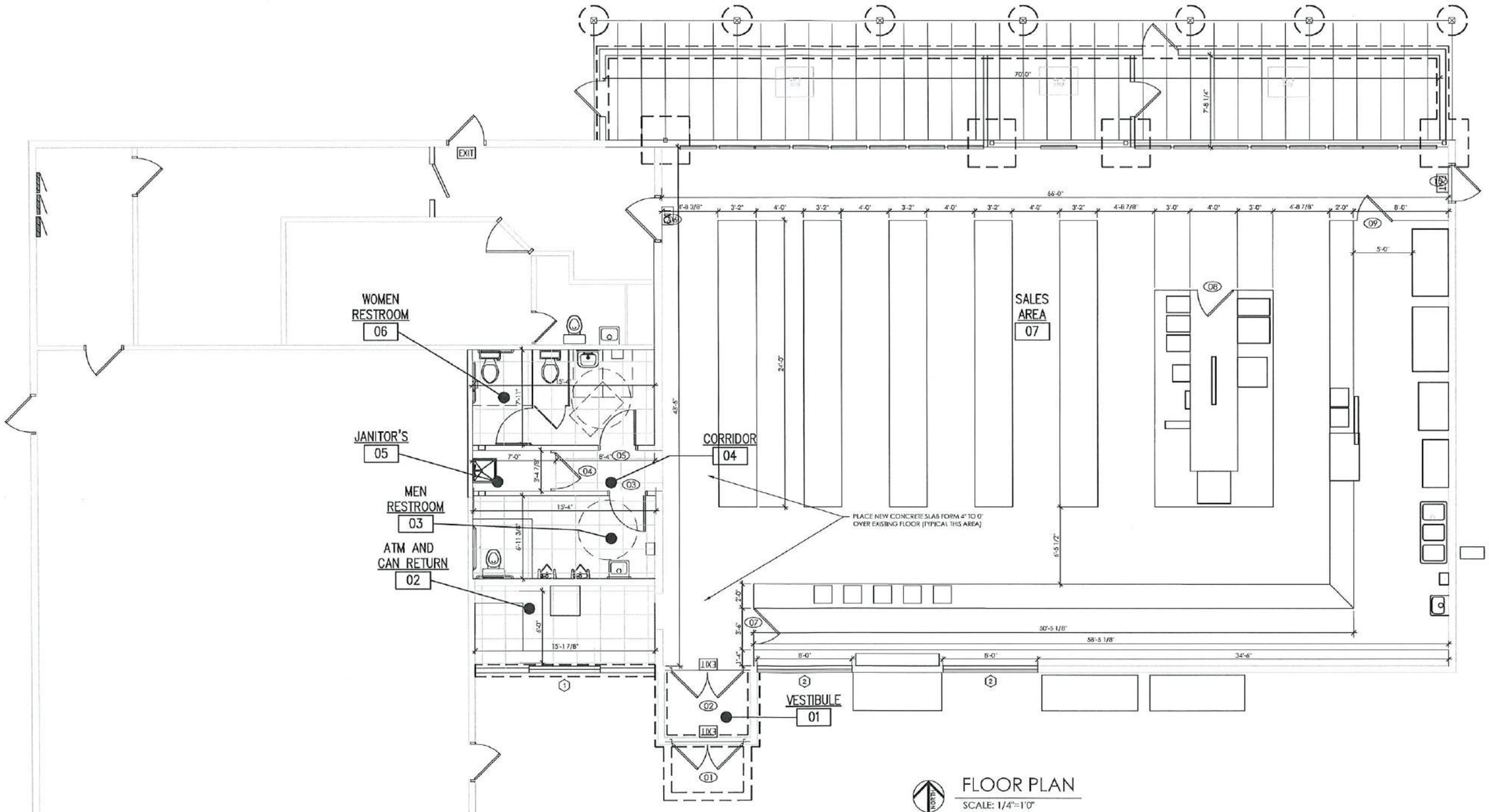
TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/20/2023

DRAWN : JDL
CHECKED : JDY
SCALE :
JOB NO : TE-22-168

SHEET TITLE :
CODE COMPLIANCE

SHEET
A-1.0



FLOOR PLAN

SCALE: 1/4"=1'0"

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STATE OF MI — No. 6201022031 — 8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/26/2023

DRAWN : JDL
CHECKED : JDT
SCALE :
JOB NO : TE-22-158

SHEET TITLE :
FLOOR PLAN

SHEET
A-1.1

DOOR SCHEDULE

DOOR NUMBER	SIZE	THICKNESS	MATERIAL	TYPE	FRAME	TYPE	HARDWARE SET	REMARKS
01	6'-0"x7'-0"	1-3/4"	H.M.	FLUSH	H.M.	D	A,D,E	
02	6'-0"x7'-0"	1-3/4"	H.M.	FLUSH	H.M.	D	A,D,E	
03	3'-0"x7'-0"	1-3/4"	WD	FLUSH	H.M.	G	B	PAINT HM FRAME GRAY
04	3'-0"x7'-0"	1-3/4"	WD	FLUSH	H.M.	G	B	PAINT HM FRAME GRAY
05	3'-0"x7'-0"	1-3/4"	WD	FLUSH	H.M.	G	B	PAINT HM FRAME GRAY
06	3'-0"x7'-0"	1-3/4"	H.M.	FLUSH	H.M.	F	A	PAINT HM FRAME GRAY
07	3'-0"x3'-6"	1-3/4"	H.M.	FLUSH	H.M.	H		1/2 DOOR SWING BOTH DIRECTIONS
08	3'-0"x3'-6"	1-3/4"	H.M.	FLUSH	H.M.	H		1/2 DOOR SWING BOTH DIRECTIONS
09	3'-0"x3'-6"	1-3/4"	H.M.	FLUSH	H.M.	H		1/2 DOOR SWING BOTH DIRECTIONS
10	3'-0"x7'-0"	1-3/4"	H.M.	FLUSH	H.M.	B	A,D,E	PAINT HM FRAME GRAY

NOTE: COORDINATE HARDWARE WITH OWNER'S SECURITY KEY CARD ACCESS SYSTEM

WINDOW SCHEDULE

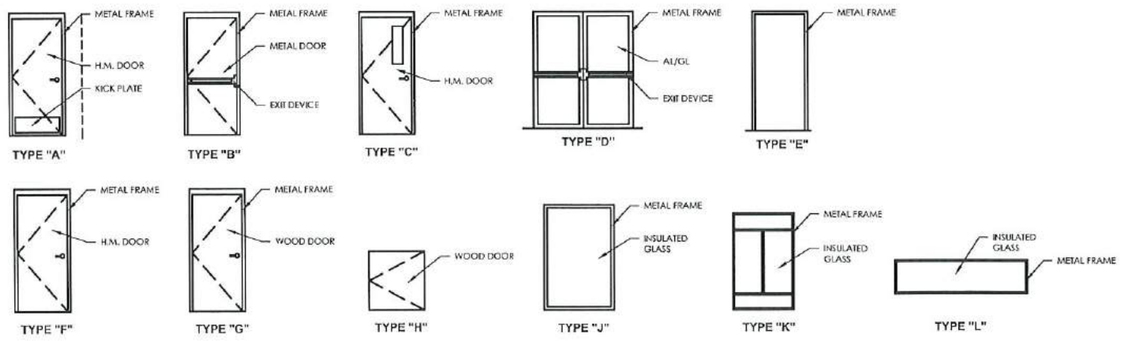
WINDOW NUMBER	WINDOW			
	SIZE	MATERAL	TYPE	REMARKS
1	4-6" x 6-0"	MTL	J	
2	8'-0" x 2'-0"	MTL	L	
3				
4				
5				

ROOM FINISH SCHEDULE

ROOM NUMBER	FLOOR					BASE			WALL				CEILING				
	RESILIENT (SHEET/PLANK)	EXPOSED CONC. W/ EPOXY	TERRAZZO EPOXY	RESILIENT	CERAMIC TILE	NONE	DRYWALL + PAINT	TILE BACKER BOARD	SUBWAY TILE	STAINLESS STEEL PLATE	EXPOSED - PAINTED BLACK	EXISTING - PAINT BLACK	METAL PANEL	DROP-IN CEILING W/ GRID	CEILING HEIGHT
01			●				●			●				●	9'-0
02			●					●	●					●	9'-0
03			●					●	●					●	9'-0
04			●					●	●					●	9'-0
05			●				●	●							OPEN
06			●					●	●					●	9'-0
07 NORTH WALL	●						●					●			OPEN
07 SOUTH WALL	●						●					●			OPEN
07 EAST WALL	●						●	●	●			●			OPEN
07 WEST WALL	●						●					●			OPEN

NOTES:
1. WALL IN SALES AREA TO BE PAINTED MARATHON GRAY FROM THE TOP OF THE DOOR TO THE FLOOR, AND FROM THE TOP OF THE DOOR A 36" STRIPE MARATHON BLUE FROM THERE UP AND INCLUDING THE CEILING PAINT BLACK.
2. SUBWAY TILE ON EAST WALL IS FROM FINISHED FLOOR TO 9'-0" ABOVE FINISH FLOOR.
3. BOTH RESTROOMS SUBWAY TILE IS FROM FINISH FLOOR TO CEILING.
4. CAN RETURN ROOM SUBWAY TILE IS FROM FINISHED FLOOR TO CEILING.
5. CORRIDOR SUBWAY TILE IS FROM FINISHED FLOOR TO CEILING.
6. VESTIBULE WALLS ARE STAINLESS STEEL PLATE FROM FINISHED FLOOR TO 4'-0" ABOVE FINISHED FLOOR. DRYWALL AND PAINT TO CEILING.

DOOR & WINDOW/FRAME TYPES



GENERAL NOTES:

1. DOOR HANDLES, PLUS LATCH LOCKS AND OTHER OPERATING MAXIMUM HEIGHT OF 48" ABOVE FINISH FLOOR. OPERATING DEVICES SHALL BE CAPABLE OF OPERATION WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF WRIST TO OPERATE. ALL MEANS OF EGRESS WHERE SERVING AN OCCUPANT LOAD OF 50 OR MORE PERSONS THE OPENING FORCE FOR INTERIOR SIDE SWING DOORS WITH OUT CLOSER SHALL NOT EXCEED 5 POUNDS FORCE. FOR ALL OTHER SIDE SWING, SLIDING AND ROLLING DOORS. THE DOOR LATCH SHALL RELEASE WHEN SUBJECTED TO A 15-POUND FORCE. THE DOOR SHALL SWING TO FULL-OPEN POSITION WHEN SUBJECTED TO A 15-POUND FORCE. FORCE SHALL BE APPLIED TO THE LATCH SIDE.
2. ALL MEANS OF EGRESS DOORS SHALL BE READILY OPERABLE FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE, OR EFFORT.
3. ALL EXIT DOORS AND MEANS OF EGRESS DOORS SHALL BE SIDE HINGED, NON-LOCKING AND SWING IN DIRECTION OF EGRESS

LEGEND

HARDWARE
- A KEY LOCK SET
- B PRIVACY LOCK
- C PASSAGE SET
- D CLOSER
- E NON LOCKING AGAINST EGRESS

DOOR TYPE A
- HM HOLLOW METAL
- AG ALUMINUM / GLASS
- AL ALUMINUM
- BM BIRD-MEETAL FRAME
- HC HOLLOW CORE
- SC SOLID CORE WOOD "LEGACY" DOOR TYPE
- GL GLASS
- WD WOOD
- INS INSULATED

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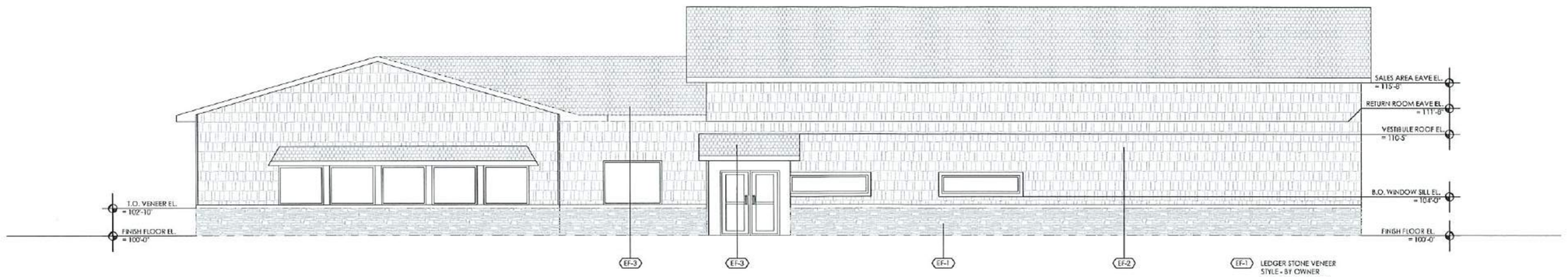
STATE OF MI — REGISTERED PROFESSIONAL ENGINEER — No. 6201022051 — 8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN : NSH
CHECKED : PGMc
SCALE : NONE
JOB NO : TE-22-158
SHEET TITLE :
SCHEDULES
SHEET
A-1.2



EXTERIOR FINISH SCHEDULE - SOUTH ELEVATION
SCALE: 3/16"=1'0"

EF-1 LEDGER STONE VENEER
STYLE - BY OWNER
COLOR - BY OWNER
INSTALL PER MANUFACTURERS SPECIFICATIONS

EF-2 METAL STAGGERED SHAKER SIDING
STYLE - BY OWNER
COLOR - BY OWNER
INSTALL PER MANUFACTURERS SPECIFICATIONS

EF-3 ASPHALT SHINGLES
STYLE - MATCH EXISTING
COLOR - MATCH EXISTING

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STATE OF MICHIGAN
ENGINEER
No. 620102203
REGISTERED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

SURVEY PROVIDED BY:
ZEMAN TAC, INC. FLINT, MICHIGAN

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : JDK
CHECKED : JDK
SCALE : 3/16" = 1'-0"
JOB NO : TE-22-168

SHEET TITLE :
EXTERIOR ELEVATIONS
SHEET
A-1.3

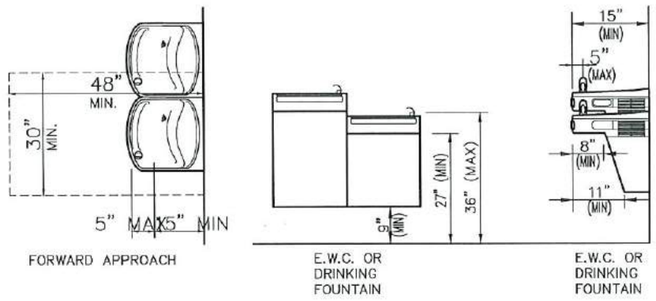
TYPICAL
BARRIER FREE MOUNTING HEIGHTS

2003 MICHIGAN BARRIER FREE, ICC/ANSI A117.1-2003

NOTE:

OBJECTS SUCH AS WALL-MOUNTED FIRE EXTINGUISHERS & DRINKING FOUNTAINS WITH LEADING EDGES MORE THAN 27" AND NOT MORE THAN 80" ABOVE THE FINISHED FLOOR SHALL NOT PROTRUDE MORE THEN 4" INTO A PATH OF CIRCULATION

ALL SIGNS TO TOILET ROOMS AND ANY OTHER ROOMS WITH PERMANENT IDENTIFICATION ARE TO BE TACTILE CHARACTER FORMS IN COMPLIANCE WITH ICC/ANSI SECTIONS 703.2.1 THRU 703.2.8

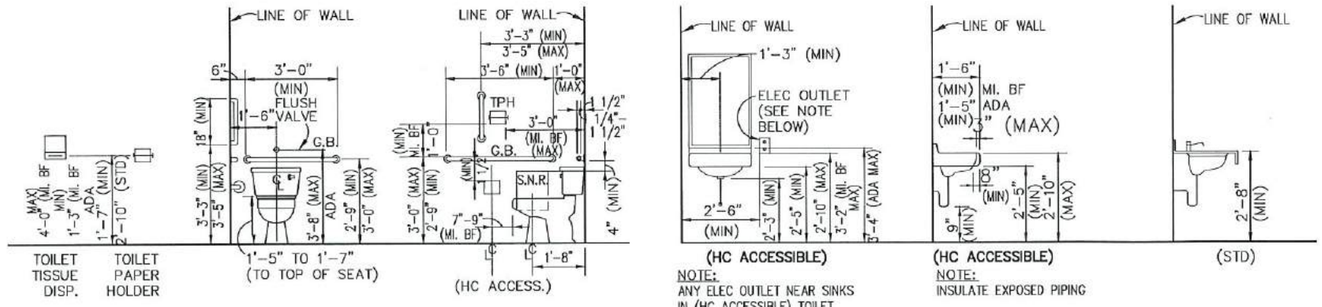


FORWARD APPROACH

E.W.C. OR DRINKING FOUNTAIN

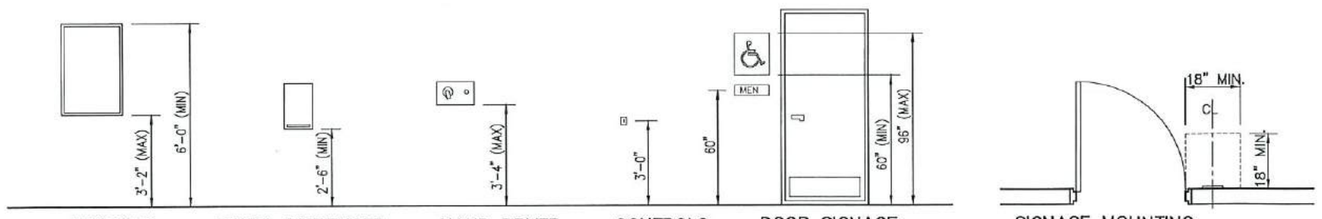
E.W.C. OR DRINKING FOUNTAIN

DRINKING FOUNTAIN



NOTE:
ANY ELEC OUTLET NEAR SINKS IN (HC ACCESSIBLE) TOILET ROOMS TO BE MOUNTED 33" TO 36" A.F.F. TO ℄

NOTE:
INSULATE EXPOSED PIPING



MIRRORS

TOWEL DISPENSER

HAND DRYER

CONTROLS

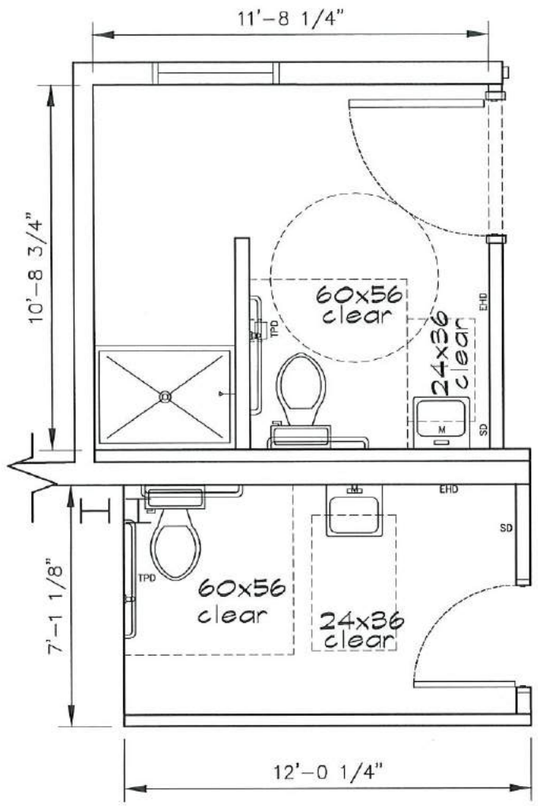
DIMMER SWITCH
HVAC CONTROL
SECURITY CONTROLS
FIRE ALARMS
RECEPTACLE
INTERCOM

DOOR SIGNAGE

A SIGN SHALL BE PROVIDED IDENTIFYING ACCESSIBLE WASHROOMS. THE SIGN SHALL BE MOUNTED AT A MAXIMUM OF 60" ABOVE FINISHED FLOOR MEASURED FROM THE BASELINE OF THE CHARACTERS ON THE LATCH SIDE OF THE DOOR

SIGNAGE MOUNTING LOCATION AT DOORS

SIGNS CONTAINING TACTILE CHARACTERS MUST HAVE AN 18" MINIMUM BY 18" MINIMUM CLEARANCE ON THE FLOOR OR GROUND LEVEL, CENTERED ON THE SIGN, BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AND A 45 DEGREE OPEN POSITION



BARRIER FREE DETAILS

LEGEND

SNR SANITARY NAPKIN RECEPTACLE
TPD DUAL TOILET PAPTER DISPENSER
SD LIQUID SOAP DISPENSER
EHD ELECTRIC HAND DRYER
FD FLOOR DRAIN
PROVIDE COMMERCIAL GRADE, STAINLESS STEEL, STAND ALONE WASTE RECEPTACLE (NOT SHOWN)
M MIRROR
FE FIRE EXTINGUISHER

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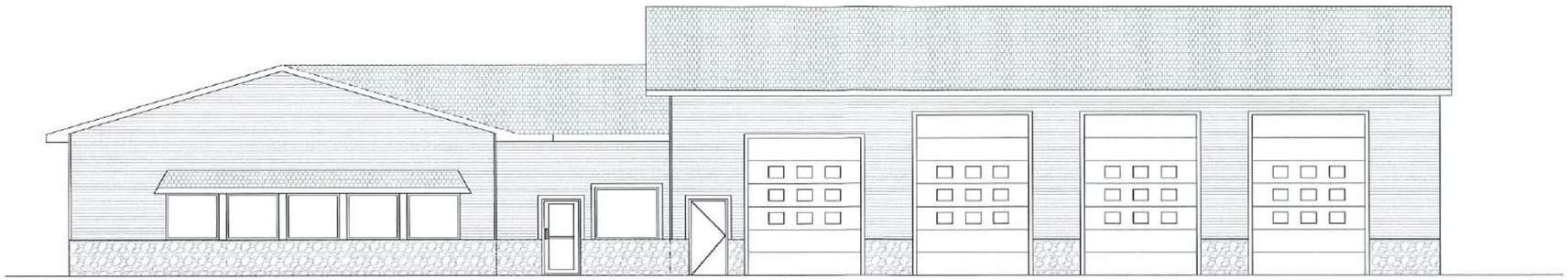
STATE OF MICHIGAN — JAMES D. SCHAFER — No. 6201022031 — REGISTERED PROFESSIONAL ENGINEER — 8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

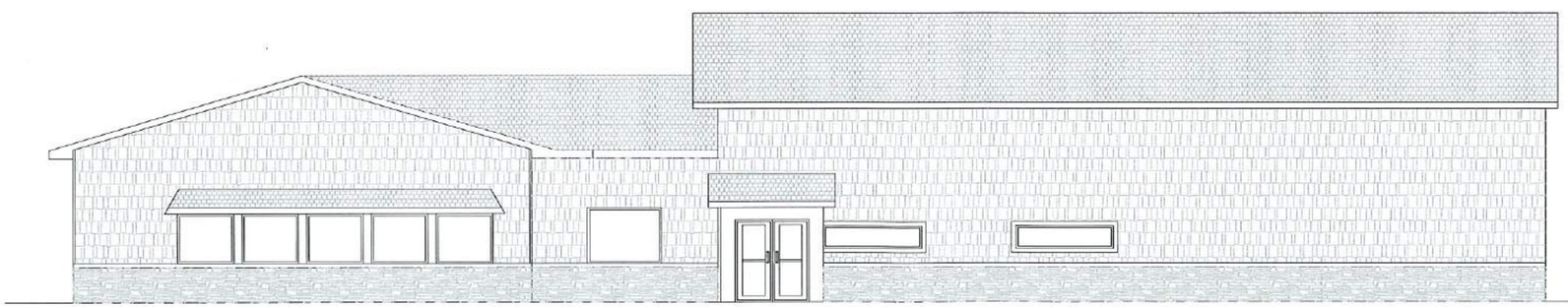
ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : RSN
CHECKED : PGMc
SCALE : NOT TO SCALE
JOB NO : TE-22-168

SHEET TITLE :
LARGE SCALE PLAN AND B.F.DETAILS
SHEET
A-1.4



1 A-2.0 | A-2.0 **SOUTH ELEVATION, EXISTING**
3/16" = 1'-0"



2 A-2.0 | A-2.0 **SOUTH ELEVATION, PROPOSED**
3/16" = 1'-0"

NOTES:
1. SEE SHEET A-1.2 FOR ELEVATIONS

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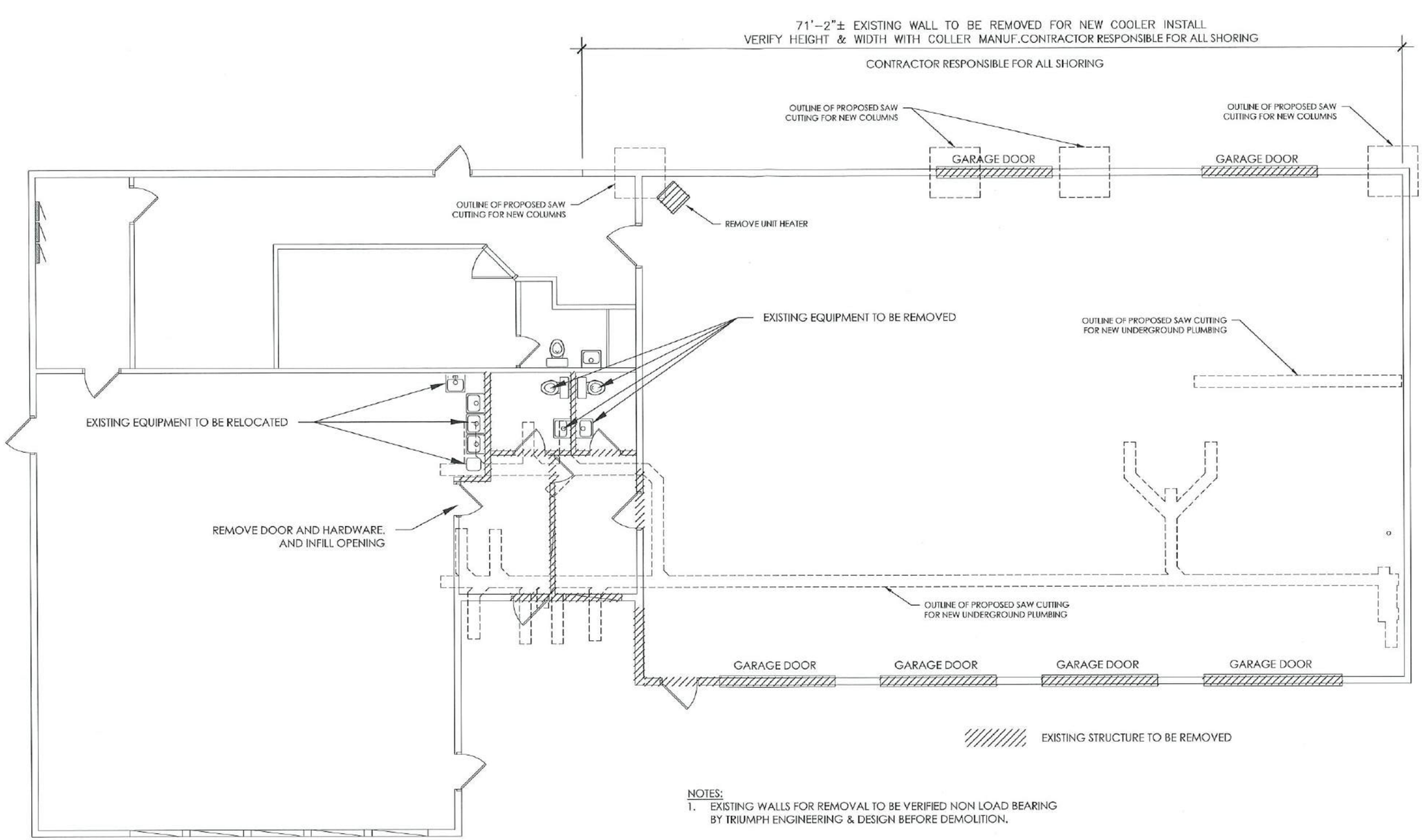
STATE OF MICHIGAN
JOSEPH D. KNAPP
No. 6201022031
REGISTERED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/26/2023

DRAWN : JDK
CHECKED : JDK
SCALE : 3/16" = 1'-0"
JOB NO : TE-22-155
SHEET TITLE :
EXTERIOR ELEVATIONS
SHEET
A-2.0



NOTES:
1. EXISTING WALLS FOR REMOVAL TO BE VERIFIED NON LOAD BEARING BY TRIUMPH ENGINEERING & DESIGN BEFORE DEMOLITION.

DEMOLITION PLAN
SCALE: 1/4"=1'0"

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STATE OF MICHIGAN
COLLER
No. 6201022031
LICENSED PROFESSIONAL ENGINEER
9/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN : RRN
CHECKED : PGMc
SCALE : NONE
JOB NO : TE-22-168
SHEET TITLE :
DEMOLITION PLAN
SHEET
D-1.0

PROPERTY DESCRIPTION:

PARCEL NUMBER 4704-17-400-006, 9485 CENTER RD
WARRANTY DEED INSTR #2012R-044520
THE FOLLOWING DESCRIBED PREMISES SITUATED IN TYRONE TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, TO WIT:
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 17, TOWN 4 NORTH, RANGE 6 EAST, TYRONE TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, THENCE NORTH 88 DEGREES 01 MINUTES 55 SECONDS WEST ALONG THE SECTION LINE 715.50 FEET TO A POINT OF BEGINNING; THENCE NORTH 24 DEGREES 09 MINUTES 57 SECONDS EAST 305.64 FEET; THENCE SOUTH 88 DEGREES 01 MINUTES 55 SECONDS EAST 250.00 FEET; THENCE SOUTH 24 DEGREES 09 MINUTES 57 SECONDS WEST 305.64 FEET TO THE SOUTH LINE OF SECTION 17; THENCE NORTH 88 DEGREES 01 MINUTES 55 SECONDS WEST 250.00 FEET TO THE POINT OF BEGINNING. SUBJECT TO EASEMENT FOR HIGHWAY PURPOSES IN THE SOUTH 33 FEET OF SAID DESCRIPTION AND ALSO IN THAT PART OF SAID DESCRIPTION WHICH IS PART OF THE SOUTH 50 FEET OF THE EAST 585.5 FEET OF SECTION 17 AND ALSO ANY OTHER RESTRICTIONS AND EASEMENTS OF RECORD;
EXCEPTING ALL OIL, GAS AND OTHER MINERAL RIGHTS;

SURVEY OF EXISTING CONDITIONS
MARATHON GAS – TYRONE PARTY STORE
9485 CENTER ROAD, FENTON, MI 48430

NORTH

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

BENCHMARK NO. 1

BOLT ON WEST SIDE OF POWER POLE, AT NORTHWEST CORNER OF OLD US 23 AND CENTER ROAD, AS SHOWN
ELEVATION–1043.51 (NAVD88)

BENCHMARK NO. 2

'X' ON NORTH RIM OF SANITARY MANHOLE, ALONG NORTH SIDE OF CENTER ROAD AT SOUTHWEST CORNER OF PROPERTY, AS SHOWN
ELEVATION–1044.15 (NAVD88)

LOCATION MAP

EXISTING ZONING INFORMATION:

ACCORDING TO THE CURRENT TYRONE TOWNSHIP ZONING ORDINANCE THIS PROPERTY IS CURRENTLY ZONED ES (EXPRESSWAY DISTRICT), AND IS SUBJECT TO THE FOLLOWING CONDITIONS:

1) MINIMUM SITE & LOT AREA = 1 ACRE
2) MINIMUM LOT WIDTH = 150 FEET
3) FRONT SETBACK = 100 FEET
4) SIDE SETBACK = 20 FEET
5) REAR SETBACK = 20 FEET
6) MAXIMUM BUILDING HEIGHT = 30 FEET
7) MAXIMUM BUILDING COVERAGE = 40%

FLOOD PLAIN NOTE:

THIS PROPERTY IS IN ZONE "X" (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 26093C0225D WHICH BEARS AN EFFECTIVE DATE OF SEPTEMBER 17, 2008 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

SURVEYOR NOTES:

1. DATE OF LAST FIELD WORK: MAY 27, 2022.

2. THE BEARINGS ARE RELATIVE TO THE SOUTH LINE OF SECTION 17, BEING N88°01'55"W.

3. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

4. THE CURRENT ZONING AS EVIDENCED BY TYRONE TOWNSHIP IS ES, EXPRESSWAY SERVICE DISTRICT.

5. PER OBSERVATION, THIS SITE IS EITHER CURRENTLY SUPPLIED BY OR HAS ACCESS TO THE FOLLOWING PUBLIC UTILITIES: GAS, ELECTRIC, AND TELEPHONE. EITHER LOCATED ADJACENT TO THE SUBJECT SITE OR WITHIN PUBLIC ROAD RIGHT-OF-WAY.

8. TOTAL PROPERTY AREA = 70,747 SFT or 1.62 ACRES

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

L E G E N D

Symbol	Description	Symbol	Description
○	SET IRON #55012	• 1051.71	EX SURFACE ELEVATION
	FOUND MONUMENTATION	------1052------	EX CONTOUR ELEVATION
	SECTION CORNER		EX DECIDUOUS TREE
	EX ROAD SIGNS		EX CONIFEROUS TREE
	EX MAILBOX		EX TREE LINE
	EX UTILITY & LIGHT POLE	CONC	CONCRETE
	EX OVERHEAD POWERLINES	ASPH	ASPHALT
	EX LIGHT POLE	R/W	RIGHT OF WAY
	EX PEDESTAL	E/E	EDGE TO EDGE
	EX BUILDING LINE	EX	EXISTING
	EX GAS LINE	FFE	FINISHED FLOOR ELEVATION
	EX GASMAIN MARKER/SIGN		EX BUILDING AREA
	EX GAS/ELEC METER		EX ASPH AREAS
	EX STORM SEWER		EX CONC AREAS
	EX STORM MANHOLE		
	EX [illegible]		
	EX SANITARY [illegible]		
	EX LIDS		
	EX MONITORING WELL		
	EX CABLE MARKER/SIGN		

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TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN :
CHECKED :
SCALE :
JOB NO : TE-22-168
SHEET TITLE :
SURVEY PLAN
SHEET
C2.0

NORTH

GRAPHIC SCALE

20 0 10 20

(IN FEET)

1 inch = 20 ft.

PROPERTY DESCRIPTION:

PARCEL NUMBER 4704-17-400-006, 9485 CENTER RD
WARRANTY DEED INSTR #2012R-044520
THE FOLLOWING DESCRIBED PREMISES SITUATED IN TYRONE TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, TO WIT:
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 17, TOWN 4 NORTH, RANGE 8 EAST, TYRONE TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN; THENCE NORTH 88 DEGREES 01 MINUTES 55 SECONDS WEST ALONG THE SECTION LINE 715.50 FEET TO A POINT OF BEGINNING; THENCE NORTH 24 DEGREES 08 MINUTES 57 SECONDS EAST 306.64 FEET; THENCE SOUTH 88 DEGREES 01 MINUTES 55 SECONDS EAST 250.00 FEET; THENCE SOUTH 24 DEGREES 08 MINUTES 57 SECONDS WEST 306.64 FEET TO THE SOUTH LINE OF SECTION 17; THENCE NORTH 88 DEGREES 01 MINUTES 55 SECONDS WEST 250.00 FEET TO THE POINT OF BEGINNING.
SUBJECT TO EASEMENT FOR HIGHWAY PURPOSES IN THE SOUTH 33 FEET OF SAID DESCRIPTION AND ALSO IN THAT PART OF SAID DESCRIPTION WHICH IS PART OF THE SOUTH 50 FEET OF THE EAST 585.5 FEET OF SECTION 17 AND ALSO ANY OTHER RESTRICTIONS AND EASEMENTS OF RECORD;
EXCEPTING ALL OIL, GAS AND OTHER MINERAL RIGHTS;

EXISTING ZONING INFORMATION:

ACCORDING TO THE CURRENT TYRONE TOWNSHIP ZONING ORDINANCE THIS PROPERTY IS CURRENTLY ZONED ES (EXPRESSWAY DISTRICT), AND IS SUBJECT TO THE FOLLOWING CONDITIONS:

1) MINIMUM SITE & LOT AREA = 1 ACRE
2) MINIMUM LOT WIDTH = 150 FEET
3) FRONT SETBACK = 100 FEET
4) SIDE SETBACK = 20 FEET
5) REAR SETBACK = 20 FEET
6) MAXIMUM BUILDING HEIGHT = 30 FEET
7) MAXIMUM BUILDING COVERAGE = 40%

FLOOD PLAIN NOTE:

THIS PROPERTY IS IN ZONE "X" (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 26093C0225D WHICH BEARS AN EFFECTIVE DATE OF SEPTEMBER 17, 2008 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

SURVEYOR NOTES:

1. DATE OF LAST FIELD WORK: MAY 27, 2022.

2. THE BEARINGS ARE RELATIVE TO THE SOUTH LINE OF SECTION 17, BEING N88°01'55"W.

3. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

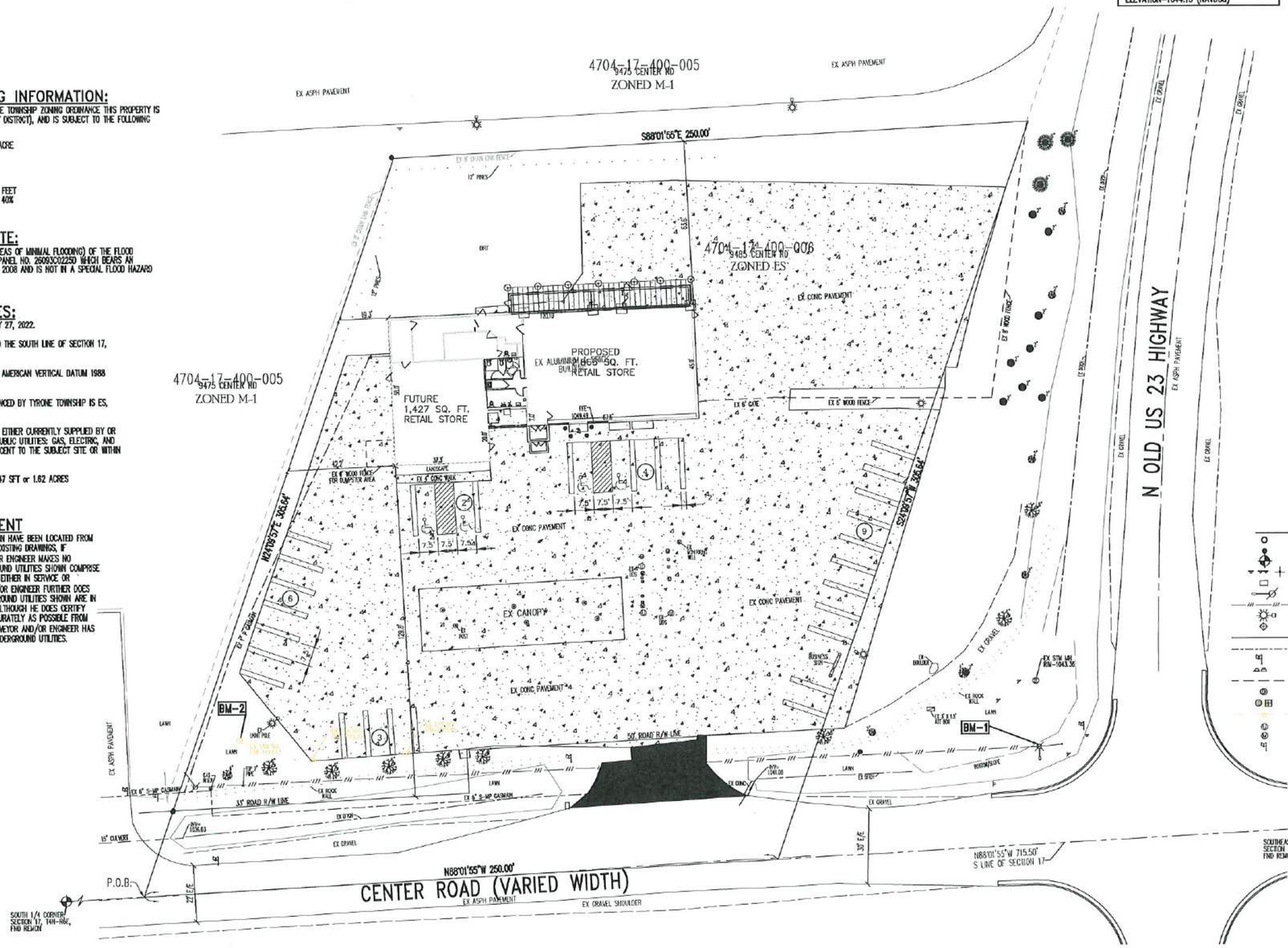
4. THE CURRENT ZONING AS EVIDENCED BY TYRONE TOWNSHIP IS ES, EXPRESSWAY SERVICE DISTRICT.

5. PER OBSERVATION, THIS SITE IS EITHER CURRENTLY SUPPLIED BY OR HAS ACCESS TO THE FOLLOWING PUBLIC UTILITIES: GAS, ELECTRIC, AND TELEPHONE. EITHER LOCATED ADJACENT TO THE SUBJECT SITE OR WITHIN PUBLIC ROAD RIGHT-OF-WAY.

8. TOTAL PROPERTY AREA = 70,747 SFT or 1.62 ACRES

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



BENCHMARK NO. 1

BOLT ON WEST SIDE OF POWER POLE AT NORTHWEST CORNER OF OLD US 23 AND CENTER ROAD, AS SHOWN
ELEVATION=1043.51 (NAVD88)

BENCHMARK NO. 2

"X" ON NORTH RIM OF SANITARY MANHOLE, ALONG NORTH SIDE OF CENTER ROAD AT SOUTHWEST CORNER OF PROPERTY, AS SHOWN
ELEVATION=1044.15 (NAVD88)

LOCATION MAP

L E G E N D

○	SET IRON #55012	+100.00	EX SURFACE ELEVATION
⊕	FOUND MONUMENTATION	1020	EX CONTOUR ELEVATION
⊕	SECTION CORNER		EX DECIDUOUS TREE
	EX ROAD SIGNS		EX CONIFEROUS TREE
	EX MAILBOX		EX TREE LINE
	EX UTILITY & LIGHT POLE	CONC	CONCRETE
	EX OVERHEAD POWERLINES	ASPH	ASPHALT
	EX LIGHT POLE	R/W	RIGHT OF WAY
	EX PEDESTAL	E/E	EDGE TO EDGE
	EX BUILDING LINE	EX	EXISTING
	EX GAS LINE	FFE	FINISHED FLOOR ELEVATION
	EX GASMAN MARKER/SIGN		EX BUILDING AREA
	EX GAS/ELEC METER		EX ASPH AREAS
	EX STORM SEWER		EX CONC AREAS
	EX STORM MANHOLE		
	EX CATCH BASIN/INLET		
	EX SANITARY CLEANOUT		
	EX LIDS		
	EX MONITORING WELL		
	EX CABLE MARKER/SIGN		

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SITE INFORMATION

PROPERTY INFORMATION:
PARCEL ID: 4704-17-400-006
9485 CENTER ROAD
SIZE: 1.62 ACRES

ZONING:
ES (EXPRESSWAY DISTRICT)

BUILDING DATA:
PROPOSED RETAIL = 3440 S.F. / 1 STORY
FUTURE RETAIL = 1427 S.F. / 1 STORY
BUILDING/LOT COVERAGE = 4,876 / 70,747 = 6.9%

PARKING DATA: (PROPOSED BUILDING)
RETAIL: 1 SPACE PER 200 SQ. FT. FLOOR SPACE
2855 SQ. FT. / 200 SQ. FT = 14.325 = 15 SPACES
REQUIRED = 15 SPACES
PROVIDED = 16 SPACES

PARKING DATA: (FUTURE BUILDING)
RETAIL: 1 SPACE PER 200 SQ. FT. FLOOR SPACE
1427 SQ. FT. / 200 SQ. FT = 7.135 = 8 SPACES
REQUIRED = 8 SPACES
PROVIDED = 8 SPACES

TOTAL PROPOSED AND FUTURE PARKING = 24 SPACES

PROVIDED
ACCESSIBLE SPACES = 4
STANDARD SPACES PROPOSED = 20
TOTAL PROVIDED = 24

USE STATEMENT:
PROPOSED: RETAIL
FUTURE: RETAIL

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STATE OF MICHIGAN
JOSEPH T. TRUAN
No. 6201022031
REGISTERED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
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TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

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DRAWN :
CHECKED :
SCALE : 1" = 20'
JOB NO : TE-22-155
SHEET TITLE :
SITE PLAN
SHEET
C3.0

DEMOLITION NOTES

1. CONTRACTORS SHALL READ ENTIRE SET AND REPORT ANY REQUEST FOR INFORMATION TO THE ARCHITECT FOR DESIGN CLARIFICATION, DIMENSIONS ARE TO BE VERIFIED BY CONTRACTOR IN FIELD. NOTIFY ARCHITECT FOR CLARIFICATION AS REQUIRED.
2. ALL ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE CAUSED BY CONSTRUCTION.
3. CONDUCT DEMOLITION TO MINIMIZE INTERFERENCE WITH ADJACENT SPACES. MAINTAIN PROTECTED EGRESS AND ACCESS AT ALL TIMES.
4. PROVIDE, ERECT, AND MAINTAIN TEMPORARY BARRIERS AND SECURITY DEVICES.
5. DO NOT CLOSE OR OBSTRUCT EGRESS CORRIDORS.
6. CEASE OPERATIONS AND NOTIFY OWNER/ARCHITECT IMMEDIATELY IF ADJACENT STRUCTURES APPEAR TO BE IN DANGER. DO NOT RESUME OPERATIONS UNTIL CORRECTIVE MEASURES HAVE BEEN TAKEN.
7. ALL DEMOLISHED MATERIAL SHALL BE REMOVED BY THE CONTRACTOR FROM THE SITE AND DISPOSED OF IN A PROPER AND LEGAL MANNER. THE SELECTION OF THE DUMP SITE AND DISPOSITION OF MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR.
8. WORK IN THE AREA SHALL INCLUDE THE DISCONNECTION, REMOVAL, RELOCATION, AND RECONNECTION COMPLETE IN ALL RESPECTS OF ALL ITEMS SHOWN ON THE PLANS AND/OR OTHERWISE REQUIRED TO SUIT THE DESIGN INTENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE PROJECT SITE TO CORRECTLY ASCERTAIN THE SCOPE OF SERVICES AND TO INCLUDE ALL PERTINENT COSTS IN THEIR BID.
9. THE CONTRACTOR IS TO PROVIDE ALL TEMPORARY SHORING, BRACING, AND SUPPORT NECESSARY TO MAINTAIN EXISTING FLOOR AND ROOF ELEVATIONS DURING DEMOLITION.
10. EXISTING SPACE THAT IS NOT IN CONTRACT SHALL REMAIN IN OPERATION. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS FOR UNINTERRUPTED OPERATION OF EXISTING BUSINESS IN BUILDING. NOTIFY ARCHITECT AND OWNER OF CONDITIONS THAT MAY RESTRICT BUSINESS OPERATION.

WOOD FRAMING

1. DIMENSIONAL FRAMING MATERIAL SHALL BEAR THE GRADE MARK OF AN ALSC APPROVED AGENCY AND SHALL HAVE MET THE REQUIREMENTS FOR:
   A. PLATES AND BLOCKING - HEM FIR NO. 2 OR BETTER
   B. REFER TO PLANS FOR THE LOAD BEARING STUD WALL SPECIFICATIONS.
2. ROOF SHEATHING AT THE SLOPED ROOF AREAS SHALL BE 1/2 INCH APA RATED WITH A PANEL SPAN RATING OF 32/16 AND SHALL BE EXTERIOR GRADE.
3. NAIL ROOF DECK TO SUPPORTS WITH 8D NAILS SPACED AT 6 INCHES O.C. AT SUPPORTED EDGES AND AT 12 INCHES O.C. AT INTERMEDIATE SUPPORTS.
4. ALL FRAMING SHALL BE ANCHORED TO SUPPORTS USING SIMPSON STRONG TIE CONNECTORS OR EQUAL. SEE DETAILS FOR SPECIFIC REQUIREMENTS.
5. ALL NAILS FOR NAILING OF STRUCTURAL LUMBER SHALL BE COMMON NAILS. ALL NAILING SHALL COMPLY WITH THE RECOMMENDED NAILING SCHEDULE "TABLE 1" OF "THE MANUAL OF HOUSE FRAMING" BY NFPA UNLESS NOTED OTHERWISE.
6. ALL FRAMING SHALL BE ERECTED TRUE LEVEL AND/OR PLUMB. MEMBERS SHALL BE SECURELY NAILED OR BOLTED IN PLACE AS DETAILED AT THE PROPER LOCATIONS OR SPACING INDICATED. ALL FRAMING MEMBERS SHALL BE OF FULL LENGTH WITHOUT PIECES ADDED OR SPLICED. FURRING, BLOCKING, NAILERS, ETC. SHALL BE SECURELY ANCHORED IN PLACE.
7. COMPLY WITH THE RECOMMENDATIONS AND PRACTICES OF THE AITC, NFPA AND TPI FOR THE INSTALLATION OF ALL WOOD FRAMING.
8. ALL WOOD IN CONTACT WITH MASONRY OF CONCRETE SHALL BE TREATED.
9. PROVIDE ONE TRIMMER AND END SUPPORTS AS SPECIFIED ON HEADER SCHEDULE AT THE END OF ALL HEADERS. PROVIDE FILL PIECES AS NEEDED UNLESS NOTED OTHERWISE. IN EXTERIOR WALLS, PROVIDE ONE FULL HEIGHT STUD TRIMMER FOR EACH 3'-0" OF WIDTH AT EACH END. SUFFICIENTLY ANCHOR ALL BEAMS AT EACH BEARING END.
10. LVL ON PLAN INDICATES THE LOCATIONS OF PRE MANUFACTURED LAMINATED VENEER LUMBER BEAM AS MANUFACTURED BY "TRUSS JOIST MACMILLAM CORPORATION" OR AN APPROVED EQUIVALENT. BEAM SHALL HAVE THE FOLLOWING ALLOWABLE STRESS VALUES:

E=	1,800,000	PSI
G=	118,750	PSI
Fb=	2,600	PSI
Fc=	750	PSI (PERPENDICULAR)
Fc=	2,510	PSI (PARALLEL)
Fv=	285	PSI

11. WHERE (2) OR MORE UNITS OF STANDARD LUMBER ARE TO BE USED AS A HEADER, EACH PLY SHALL BE NAILED TOGETHER WITH (2) ROWS OF 16D NAILS AT 12" O.C.
12. PROVIDE JOIST HANGERS FOR ALL BEAMS AND JOISTS WHICH FRAME INTO THE SIDE OF GIRDERS. HANGERS SHALL HAVE A MINIMUM VERTICAL SHEAR CAPACITY OF V (LB.) = 100 x SPAN (FT.) / 2
13. ALL WOOD PROVIDED SHALL BE SEASONED WITH MAXIMUM MOISTURE CONTENT OF 19% AT THE TIME OF DRESSING

WOOD TRUSSES

1. ALL WOOD TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING LOADS:

	TOP CHORD DEAD LOAD	10 PSF + WEIGHT OF TRUSS + WEIGHT OF HVAC UNITS
	BOTTOM CORD DEAD LOAD	10 PSF + WEIGHT OF TRUSS
	TOP CHORD LIVE LOAD	20 PSF - SEE GENERAL NOTES FOR SNOW LOAD

2. THE EXTENT OF ROOF TRUSSES SHOWN ON THE PLANS IS FOR REFERENCE ONLY. THE FABRICATOR SHALL VERIFY ALL DIMENSIONS, TRUSS LAYOUT, CONFIGURATIONS, NUMBER OF EACH TYPE OF TRUSS REQUIRED, LOADING AND DETAILS.
3. WOOD TRUSSES SHALL BE DESIGNED, FABRICATED AND INSTALLED PER TRUSS PLATE INSTITUTE, INC. SPECIFICATIONS AND NFPA NATIONAL INC. SPECIFICATIONS AND NFPA NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
4. ALL TRUSSES SHALL BE ANCHORED TO SUPPORTS AND INDICATED AN IF NOT INDICATED, PER MANUFACTURERS RECOMMENDATIONS.
5. DEFLECTION OF TRUSSES SHALL BE LIMITED TO MAXIMUM LIVE LOAD DEFLECTION OF SPAN/360.

   SUBMITTALS:
6. SHOP DRAWINGS SHOWING SIZES, DESIGN VALUES, MATERIALS, AND DIMENSIONAL RELATIONSHIPS OF COMPONENTS AS WELL AS BEARING AND ANCHORAGE DETAILS. TO EXTEND ENGINEERING DESIGN CONSIDERATIONS ARE FABRICATOR'S RESPONSIBILITY. SUBMIT DESIGN ANALYSIS AND TEST REPORTS INDICATING TRUSS PERFORMANCE CHARACTERISTICS COMPLY WITH REQUIREMENTS. CALCULATIONS AND SUBMITTALS OF REQUIRED CONNECTORS TO CONNECT TRUSSES TO GIRDER TRUSSES.
7. PROVIDE SHOP DRAWINGS WHICH HAVE BEEN SIGNED AND STAMPED BY AN ENGINEER LICENSED TO PRACTICE IN THE STATE OF MICHIGAN.
8. DESIGN AND SPECIFICATION OF TEMPORARY AND PERMANENT WOOD TRUSS BRACING BY TRUSS MANUFACTURER AND SHOWN ON SHOP DRAWINGS. TRUSS INSTALLER SHALL PROVIDE AND INSTALL BRACING PER SHOP DRAWINGS.

METAL DECK AND FORM

1. METAL DECK AND FORM SHALL CONFORM TO ALL PROVISIONS OF THE "CODE OF RECOMMENDED STANDARD PRACTICE FOR COMPOSITE DECK, FORM DECK AND ROOF DECK CONSTRUCTION" AS ADOPTED BY THE STEEL DECK INSTITUTE.
2. METAL DECK AND FORM DECK SHALL BE PROVIDED WITH NESTING SIDE SEAMS OF DEPTH AND GAUGE AS INDICATED ON THE DRAWINGS. METAL ROOF DECK SHALL BE WIDE RIB TYPE "B". PROVIDE DECK MANUFACTURERS STANDARD ROOF SUMP PANS FOR EACH ROOF SUMP LOCATION.
3. METAL DECK AND FORM IS DESIGNED TO ACT AS A DIAPHRAGM AND IS INTENDED TO BRACE THE BUILDING. EXTREME CARE SHOULD BE UTILIZED TO INSTALL DECK AND FORM CONNECTIONS.

MASONRY

1. THE MASONRY PORTIONS OF THIS STRUCTURE ARE DESIGNED ACCORDING TO THE LATEST WORKING STRESS DESIGN PROVISIONS OF THE MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530/ASCE 5/TMS 402) AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1/ASCE 6/TMS 602) INCLUDING (ACI 530.1/ASCE 6/TMS 602) INCLUDING SECTIONS 2106 AND 2107 OF CHAPTER 21 IN THE MICHIGAN BUILDING CODE MASONRY COMPONENTS HAVE BEEN DESIGNED ACCORDING TO THE PROVISIONS FOR SEISMIC DESIGN CATEGORY B.
2. ALL STRUCTURAL MASONRY IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 550/ASCE 5/TMS 402) AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1/ASCE 6/TMS 602). MASONRY SUBMITALS ARE REQUIRED BY ACI 530.1/ASCE 6/TMS 602 SECTION 1.5. MASONRY TESTING AND INSPECTIONS ARE REQUIRED BY ACI 530.1/ASCE 6/TMS 602 SECTION 1.6, TABLE 5, LEVEL 2 QUALITY ASSURANCE.
3. ALL STRUCTURAL MASONRY HAS BEEN ENGINEERED IN ACCORDANCE WITH CHAPTER 2. ALLOWABLE STRENGTH DESIGN. COMPRESSION STRENGTH SHALL BE DETERMINED ACCORDING TO THE UNIT STRENGTH METHOD FOR CONCRETE MASONRY MSJC SECTION 1.4.B.2.b.
4. ALL BLOCK SHALL CONFORM TO ASTM C 90 AND C 140, TYPE 1, GRADE N.
5. MORTAR SHALL CONFORM TO ASTM C 90 AND C 140, TYPE 1, GRADE N
   IN CONTACT WITH EARTH-TYPE M OR S TYPE M OR S = 1900 PSI
   REINFORCED-TYPE S TYPE N = 2150 PSI
   NOT IN CONTACT WITH EARTH-TYPE N, M OR S
6. GROUT SHALL CONFORM TO ASTM C 476. WITH PEA GRAVEL AGGREGATE AND MINIMUM STRENGTH OF 2000 PSI.
7. MINIMUM MASONRY COMPRESSIVE STRENGTH SHALL BE f'm = 1500 PSI.
8. ALL STRUCTURAL MASONRY SHALL COURSE IN STANDARD RUNNING BOND. UNLESS NOTED OTHERWISE. ALL INTERSECTING BEARING WALLS, SHEAR WALLS OR OTHER STRUCTURAL WALLS SHALL BE LAID UP IN INTERLOCKED, BONDED COURSING. MECHANICAL ANCHORS OR WALL TIES MAY BE SUBSTITUTED WITH PRIOR APPROVAL BY THE ENGINEER.
9. PROVIDE HORIZONTAL WIRE TYPE REINFORCING WITH 9 GAUGE SIDE RODS AND 9 GAUGE CROSS RODS IN EVERY SECOND COURSE (16" O.C.), IN ALL MASONRY WALLS. SPACE AT 8" O.C. AT PARAPET WALLS. PROVIDE "LADDER" TYPE REINFORCING ONLY IN WALLS WITH VERTICAL REINFORCING. PROVIDE ADJUSTABLE TIES AT ALL LINTELS AND CAVITY WALLS AT 18" O.C. MAXIMUM SPACING.
10. PROVIDE 1-#5 VERTICAL BAR EACH SIDE OF EACH CONTROL JOINT. SEE PLANS FOR ADDITIONAL REINFORCING AT CORNERS, OPENINGS, ETC.
11. ALL REINFORCING BARS, DOWELS AND TIES SHALL CONFORM TO ASTM A615, GRADE 60. VERTICAL REINFORCING BARS SHALL BE HELD IN PLACE BY POSITIONERS SPACED NOT FURTHER THAN RECOMMENDED BY CODE.
12. PROVIDE A CONTINUOUS BOND BEAM, WITH 2-#5's, AT TOP OF WALLS PARALELL WITH ROOF/FLOOR FRAMING. STEP BOND BEAMS ELEVATIONS AS REQUIRED, LAP MINIMUM 32".
13. PERFORM GROUTING ACCORDING TO THE FOLLOWING:
    -ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID
    -ALL CORES WITH VERTICAL REINFORCING OR TO RECEIVE DRILLED IN ANCHORS SHALL BE GROUTED SOLID
    -ALL MASONRY PIERS AND PILASTERS SHALL BE GROUTED SOLID
    -MAXIMUM 4'-0" HIGH LIFTS
14. ALL BEAMS SUPPORTING MASONRY, INCLUDING STEEL, PRECAST AND MASONRY LINTELS ARE TO BEAR 8" MIN. ON 3 COURSES OF SOLID MASONRY.
15. STRUCTURAL STEEL BEAMS, WIDE FLANGE AND TUBE STEEL LINTELS, REFER TO LINTEL SCHEDULE FOR SIZE AND ADDL INFORMATION.
16. UNLESS NOTED OTHERWISE, PROVIDE LOOSE LINTELS AT MISCELLANEOUS ARCHITECTURAL, MECHANICAL AND ELECTRICAL OPENINGS FOR EACH 4" OF MASONRY WALL THICKNESS IN ACCORDANCE WITH THE FOLLOWING:

    -L4x3 1/2x5/16 LLV FOR SPANS UP TO 3'-4"
    -L5x3 1/2x5/16 LLV FOR SPANS UP TO 5'-4"
    -L6x3 1/2x5/16 LLV FOR SPANS UP TO 6'-8" MAX.

    AT CONTRACTORS OPTION, MASONRY LINTELS ARE ALSO ACCEPTABLE FOR MISCELLANEOUS OPENINGS:

    -8"W (OR 12"W) x8"H REINF. w/2-#5 FOR SPANS UP TO 3'-4"
    -8"W (OR 12"W) x8"H REINF. w/2-#6 FOR SPANS UP TO 5'-4"
    -8"W (OR 12"W) x16"H REINF w/2-#6 FOR SPANS UP TO 6'-8" MAX.

    COORDINATE REQUIREMENTS FOR LOOSE LINTELS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
17. ALL DOUBLE ANGLE LINTELS SHALL BE WELDED BACK TO BACK WITH A MINIMUM 2 INCH STITCH WELD EVERY 8 INCHES.

GENERAL NOTES

GENERAL CONDITIONS
1. IF ANY GENERAL NOTE CONFLICTS WITH ANY DETAIL OR NOTE ON THE PLANS OR IN THE SPECIFICATIONS, THE STRICTEST PROVISION SHALL GOVERN.
2. THE STRUCTURAL DRAWINGS ARE FOR THE PLACEMENT AND SIZE OF STRUCTURAL COMPONENTS ONLY. REQUIREMENTS MADE BY OSHA, DNR, AND ALL APPLICABLE SAFETY CODES ARE TO BE DETERMINED AND PROVIDED BY THE CONTRACTOR.
3. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER IT IS FULLY COMPLETED ACCORDING TO THE PLANS AND SPECIFICATIONS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION/ERECTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES PROVIDING TEMPORARY BRACING, SHORING GUYS OR TIE-DOWNS. THESE TEMPORARY SUPPORTS SHALL REMAIN IN PLACE UNTIL ALL STRUCTURAL COMPONENTS ARE IN PLACE AND COMPLETED AS THE STRUCTURAL MEMBERS OR SYSTEMS ARE NOT SELF-BRACING UNTIL PERMANENTLY CONNECTED TO THE STRUCTURE.
4. THE ARCHITECT AND STRUCTURAL ENGINEER ASSUME NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION. AS SUCH, THE MEANS AND METHODS OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S).
5. USE OF ENGINEERING DRAWINGS AS ERECTION DRAWINGS BY THE CONTRACTOR IS EXPRESSLY PROHIBITED.
6. DESIGN LOADS: IBC 2015/ASCE 7-10

   ROOF DEAD LOAD=15 PSF
   ROOF LIVE LOAD=25 PSF
   GROUND SNOW LOAD=25 PSF
   WIND = PER ASCE 7-10 WITH BASIC WIND SPEED = 115 MPH
   SEISMIC = PER ASCE 7-16 WITH Sds = 0.092, Sd1= 0.070
7. REQUIRED INSPECTIONS
   COORDINATE CONSTRUCTION SCHEDULE WITH OWNERS QUALITY INSPECTOR WITH ADEQUATE NOTICE PROVIDED IN ORDER TO ALLOW THE FOLLOWING INSPECTIONS. SEE PROJECT MANUAL AND REFERENCED CODES FOR SPECIFIC INSPECTION AND TESTING REQUIREMENTS.

FOUNDATIONS

1. FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED SOIL WITH AN ASSUMED SAFE BEARING CAPACITY OF 3000 PSF. CONTRACTOR SHALL RETAIN A QUALIFIED SOILS ENGINEER TO PERFORM EXPLORATION SUFFICIENT TO CONFIRM THIS CAPACITY PRIOR TO COMMENCEMENT OF FOUNDATION EXCAVATIONS. ACCEPTABLE SETTLEMENT LIMITS = 1 INCH OVERALL AND 1/2 INCH DIFFERENTIAL. IF SOIL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED, FOOTINGS SHALL BE ENLARGED OR LOWERED AT THE DIRECTION OF THE ENGINEER. ALLOWABLE SOIL BEARING PRESSURE SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED SOILS ENGINEER.

   UNLESS OTHERWISE NOTED OR DETAILED, ALL FOUNDATIONS SHALL BE LOCATED SUCH THAT THE
2. CENTERLINE OF FOOTING IS ALSO THE CENTERLINE OF COLUMN.

   PREPARATION OF THE SITE, BUILDING FOOTPRINT AND SLAB SUB-BASE SHALL PROCEED IN
3. COMPLIANCE WITH LOCAL CODES AND THE PROJECT SOILS REPORT IDENTIFIED ABOVE, UNLESS OTHERWISE NOTED OR SPECIFIED. ALL FILL UNDER FLOOR SLABS AND BEHIND FOUNDATION WALLS SHALL BE COMPACTED WITH VIBRATORS, COMPACTORS, ETC. TO 95% MAXIMUM DENSITY (MODIFIED PROCTOR) AT OPTIMUM MOISTURE CONTENT. ONLY SMALL HAND OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 8 FEET OF BASEMENT WALLS.

   PROVIDE NECESSARY SHEETING, SHORING, FORMING OR BRACING, ETC., DURING EXCAVATION
4. AS REQUIRED TO PROTECT SIDES OF EXCAVATIONS OR AS REQUIRED TO COMPLY WITH SAFETY REGULATIONS.

   THIS TRADE SHALL PROVIDE PUMPS, WELL POINTS, OR OTHER SYSTEMS AS REQUIRED BY THE
5. CONDITIONS IDENTIFIED IN THE PROJECT SOILS REPORT. PUMPS SHALL BE OPERATED AS REQUIRED TO ACCOMPLISH THE ABOVE, ON A 24 HOUR BASIS, IF NECESSARY. UNDER NO CONDITION SHALL WATER BE ALLOWED TO WASH OVER FRESHLY PLACED CONCRETE.

   ALL BOTTOM OF FOOTING TRANSITIONS SHALL BE MADE USING STEPS AS SHOWN IN THE TYPICAL
6. DETAILS. WHERE NEW FOOTINGS ABUT EXISTING FOUNDATIONS, CAREFULLY HAND EXCAVATE AND PLACE BOTTOM OF NEW FOOTING AT THE SAME ELEVATION AS THE EXISTING.

CONCRETE

1. THE CONCRETE PORTIONS OF THE STRUCTURE ARE DESIGNED ACCORDING TO THE LATEST ULTIMATE STRENGTH DESIGN PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY (ACI 318) INCLUDING SECTIONS 1902 THRU 1907 OF CHAPTER 19 IN THE MICHIGAN BUILDING CODE. CONCRETE COMPONENTS HAVE BEEN DESIGNED ACCORDING TO THE PROVISIONS FOR SEISMIC DESIGN CATEGORY B.
2. ALL CONCRETE SHALL BE NORMAL WEIGHT (150 PCF), EXCEPT SUPPORTED SLABS WHICH SHALL BE LIGHT WEIGHT (110 PCF). MINIMUM CONCRETE STRENGTH SHALL BE f'c = 3000 PSI MIN. AT 28 DAYS. UNLESS NOTED OTHERWISE SUPPORTED SLABS AND SLABS ON GRADE SHALL BE f'c = 3500 PSI MIN. UNLESS NOTED OTHERWISE. PROVIDE f'c = 4000 PSI WITH 6% ± 1% ENTRAINED AIR WHERE CONCRETE IS EXPOSED TO EXTERIOR ATMOSPHERE OR WEATHER.
3. ALL CONCRETE SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C150. AGGREGATE SHALL CONFORM TO ASTM C33.
4. CONCRETE ADMIXTURES SHALL BE USED TO FACILITATE CONCRETE PLACEMENT, AID DIFFICULT PLACING CONDITIONS OR ASSIST IN ATTAINING SPECIFIED CONCRETE QUALITIES. ADMIXES SHALL HAVE LESS THAN 0.05% CHLORIDE IONS.

   AIR ENTRAINMENT PER ASTM C260
   WATER REDUCER PER ASTM C494, TYPE A
   WATER REDUCER/ACCELERATOR PER ASTM C494, TYPE C OR E
   WATER REDUCER/RETARDER PER ASTM C494, TYPE B OR D
   SUPERPLASTICIZER PER ASTM C494, TYPE F OR G
5. CONCRETE MIXES SHALL BE PROPORTIONED PER SECTION 3.9 OF ACI301. CERTIFIED HISTORICAL TEST DATA SHALL SERVE AS A BASIS FOR EACH MIX DESIGN. DEVIATIONS SHALL BE SUBSTANTIATED WITH ADDITIONAL CERTIFIED TRIAL MIX TESTING AND RESULTS. SUBMIT MIX DESIGN HISTORICAL TEST DATA OR TRIAL MIX RESULTS FOR APPROVAL PRIOR TO PROCEEDING WITH THE WORK. WHERE HISTORICAL TEST DATA IS NON-EXISTENT THE FOLLOWING GUIDELINES SHALL APPLY:

TYPE	COMPRESSIVE STRENGTH, f'c (28 DAY, PSI)	CEMENT CONTENT (LBS./C.Y.)	WATER/CEMENT RATIO (BY WEIGHT)	(SLUMP)
STANDARD, NORMAL WT.	3000 MIN.	470 MIN.	0.52 MIN.	4" MAX.
STANDARD, NORMAL WT.	3500 MIN.	517 MIN.	0.05 MAX.	4" MAX.
STANDARD, LIGHT WT.	3500 MIN.	564 MIN.	0.44 MAX.	SEE SPEC.
AIR ENTRAINED, NORM. WT.	4000 MIN.	564 MIN.	0.40 MAX.	4" MAX.

6. ALL CONCRETE WORK AND PLACEMENT SHALL CONFORM TO THE LATEST ACI STANDARDS AND RECOMENDATIONS. FREE FALL SHALL NOT EXCEED 10 FEET FOR ALL CONCRETE CONTAINING HIGH-RANGE WATER REDUCER (SUPERPLASTICIZER) AND 5 FEET FOR ALL OTHER CONCRETE. PROVIDE ELEPHANT TRUNK, TREMIES OR OTHER PLACING EQUIPMENT OR OPENINGS IN SIDES OF FORMS AS REQUIRED TO LIMIT FREE FALL.
7. ALL REINFORCING BARS, DOWELS AND TIES SHALL CONFORM TO ASTM A615, GRADE 60. ALL REINFORCING STEEL SHALL BE CONTINUOUS AND SHALL 36 BAR DIAMETER LAP MINIMUM AND SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315 AND ACI 318, LATEST EDITION. HOOK ALL BEAM BARS AT DISCONTINUOUS ENDS.
8. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 FURNISHED IN FLAT MATS OR SHEETS, NOT IN ROLLS. PROVIDE MINIMUM 6" LAP BETWEEN SHEETS. ALL SLAB REINFORCING SHALL BE SUPPORTED ON SAND CHAIRS.
9. ALL EXPOSED CONCRETE CORNERS AND EDGES SHALL BE CHAMFERED 3/4".

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www.triumpheng.com

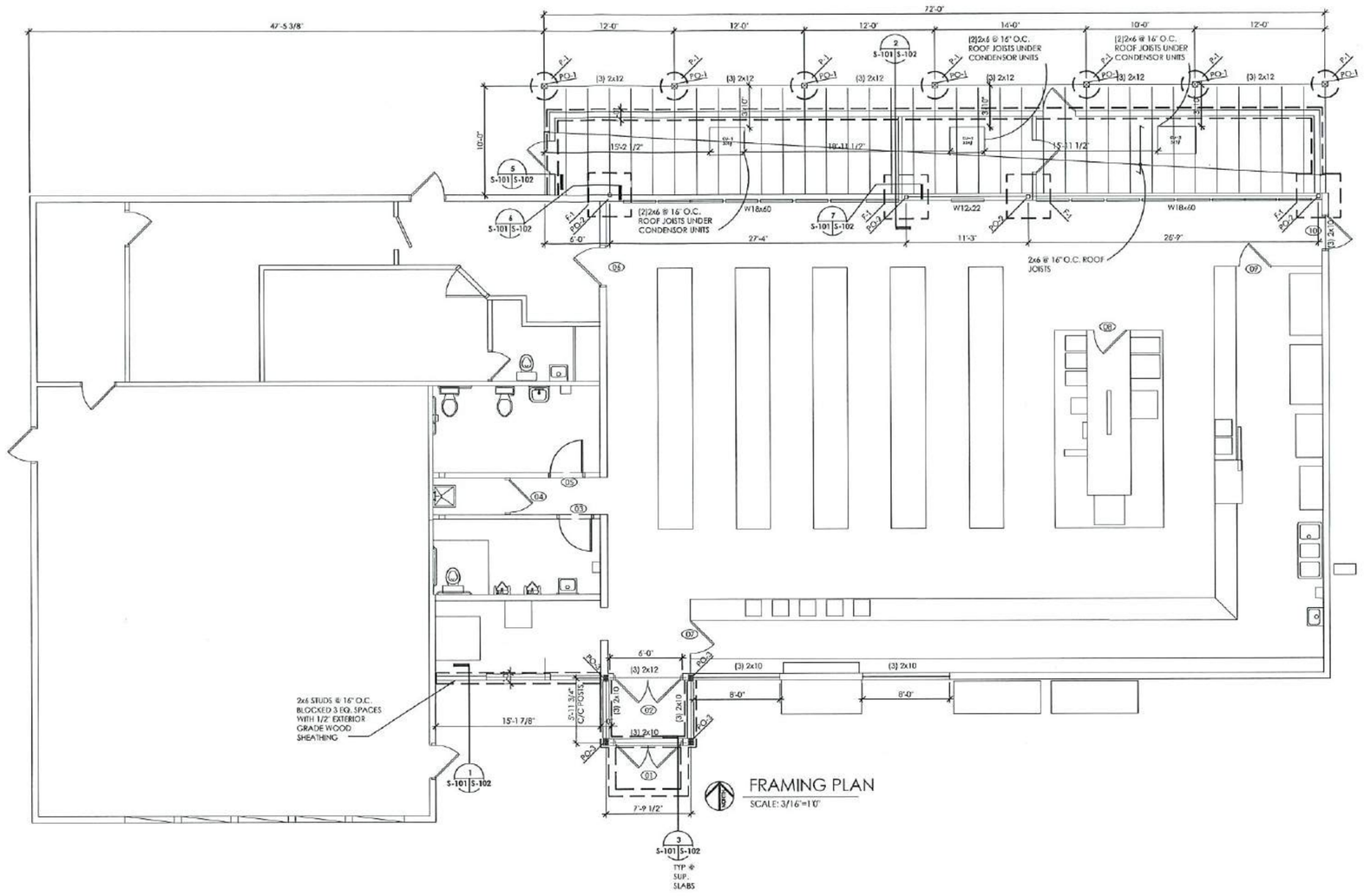
STATE OF MICHIGAN
JOSEPH D. KOCHER
No. 6201022031
REGISTERED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

DESIGNED BY TRIUMPH ENGINEERING & DESIGN, INC. ALL RIGHTS RESERVED

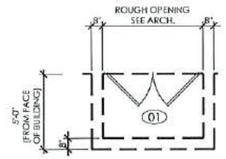
ISSUED FOR	DATE
PERMITS	07/26/2023

DRAWN : JDK
CHECKED : JDK
SCALE : NONE
JOB NO : TE-22-168
SHEET TITLE :
STRUCTURAL NOTES
SHEET
S-100



FRAMING PLAN

SCALE: 3/16"=1'0"



TYPICAL ENLARGED STOOP PLAN

1/4" = 1'-0"

FOOTING SCHEDULE

ASSUMED ALLOWABLE SOIL PRESSURE = 3000 PSF

		F-1	MARK
		4'0"x4'-0"	SIZE
		42"	THICKNESS
		7-#7 E.W. BOTT	REINF
		WITH HOOKS	REMARKS

POST SCHEDULE

ALL WOOD COLUMNS SPF #2

	PO-3	PO-2	PO-1	MARK
	(5) 2x6 WOOD	HSS5x5x1/4	6x6 WOOD	SIZE
		PL 1'-2"x11"x 0'-11"	SIMPSON ABU66Z POST BASE	BASE PLATE
	EL=100'-2"	EL=99'-5"	EL=100'-2"	B.O. BASE PL.
		3/4"Øx0'-9" LG	PER MANUF. SPECS.	ANCHOR BOLTS
		6" EMBED MIN.	PRESSURE TREATED	REMARKS - -

PIER SCHEDULE

	P-1	MARK
	30"X30"	SIZE
	100'- 2"	TOP OF PIER
	(6) #5 VERT. #4 TIES @ 12" O.C.	REINF.
		REMARKS

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STATE OF MICHIGAN — JOSEPH D. KOCHER — No. 6201022031 — LICENSED PROFESSIONAL ENGINEER

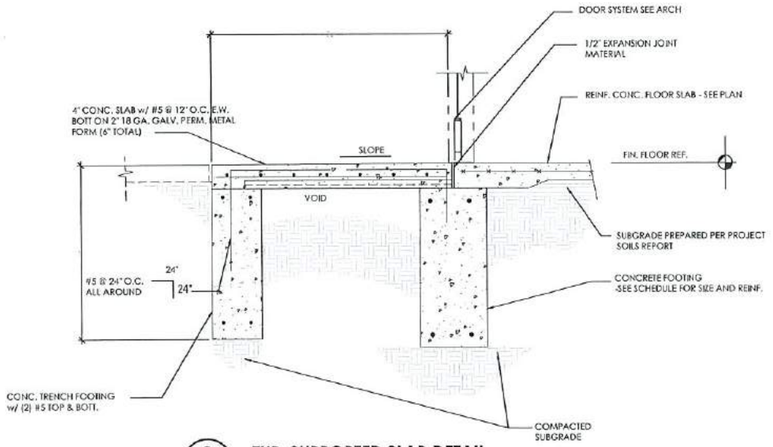
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

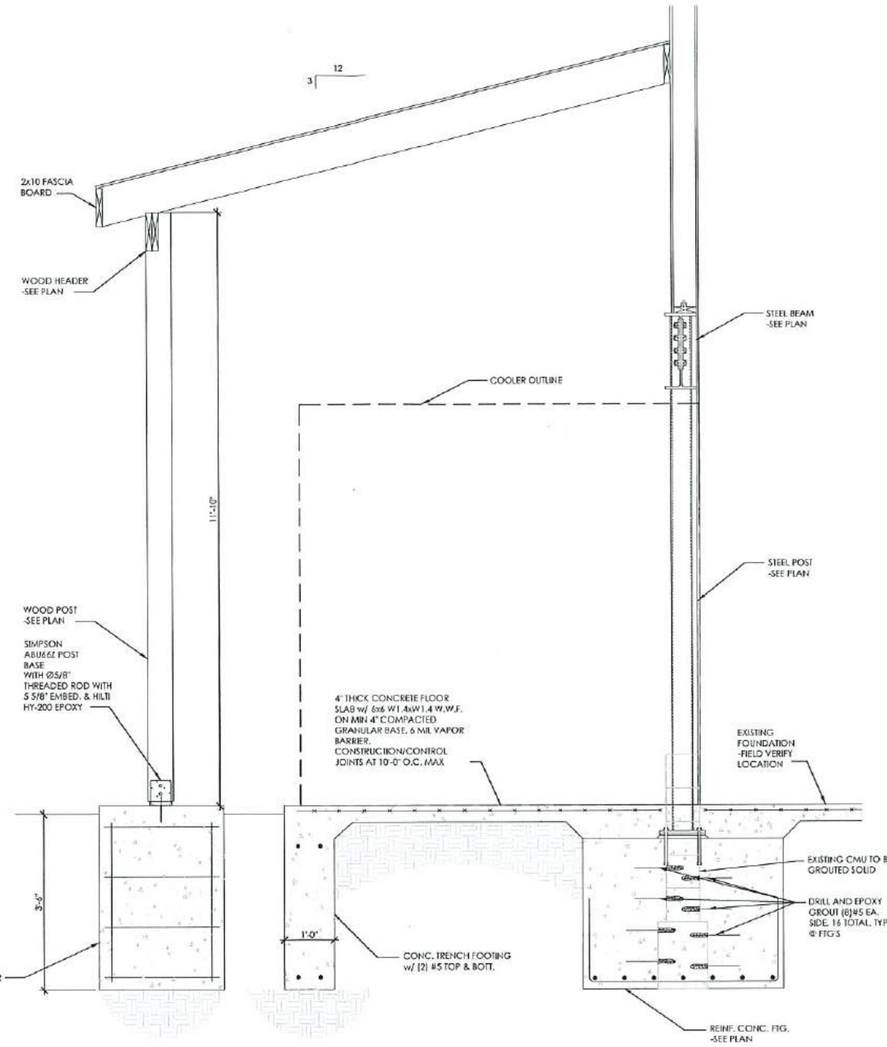
ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : JDK
CHECKED : JDK
SCALE : 3/16" = 1'-0"
JOB NO : TE-22-168

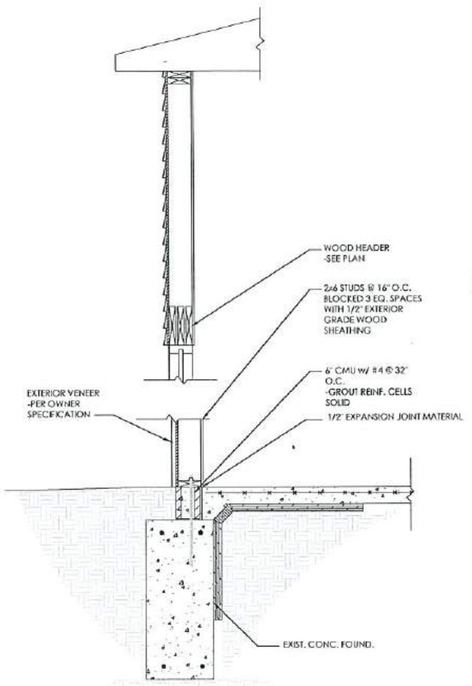
SHEET TITLE :
STRUCTURAL FRAMING PLAN
SHEET
S-101



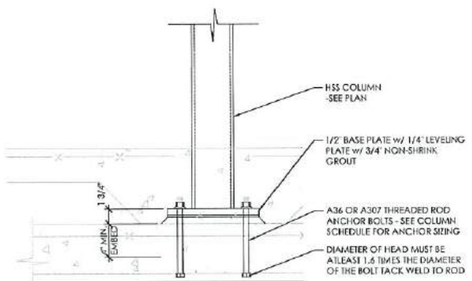
3 S-101 | S-102 **TYP. SUPPORTED SLAB DETAIL**
3/4" = 1'-0"



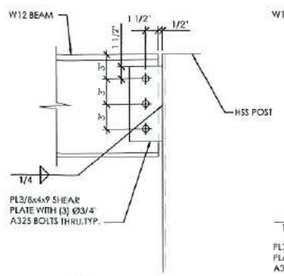
2 S-101 | S-102 **SECTION**
3/4" = 1'-0"



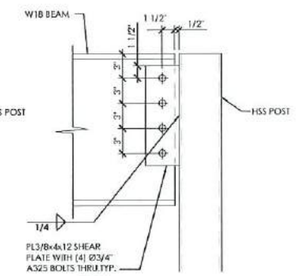
1 S-101 | S-102 **SECTION**
3/4" = 1'-0"



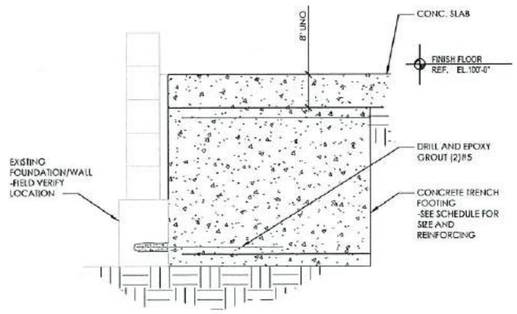
4 S-102 | S-102 **TYPICAL HSS5X5 BASE PLATE DETAIL**
1 1/2" = 1'-0"



7 S-101 | S-102 **DETAIL**
1 1/2" = 1'-0"



6 S-101 | S-102 **DETAIL**
1 1/2" = 1'-0"



5 S-101 | S-102 **TYP. DRILL/EPOXY FOOTING DETAIL**
3/4" = 1'-0"

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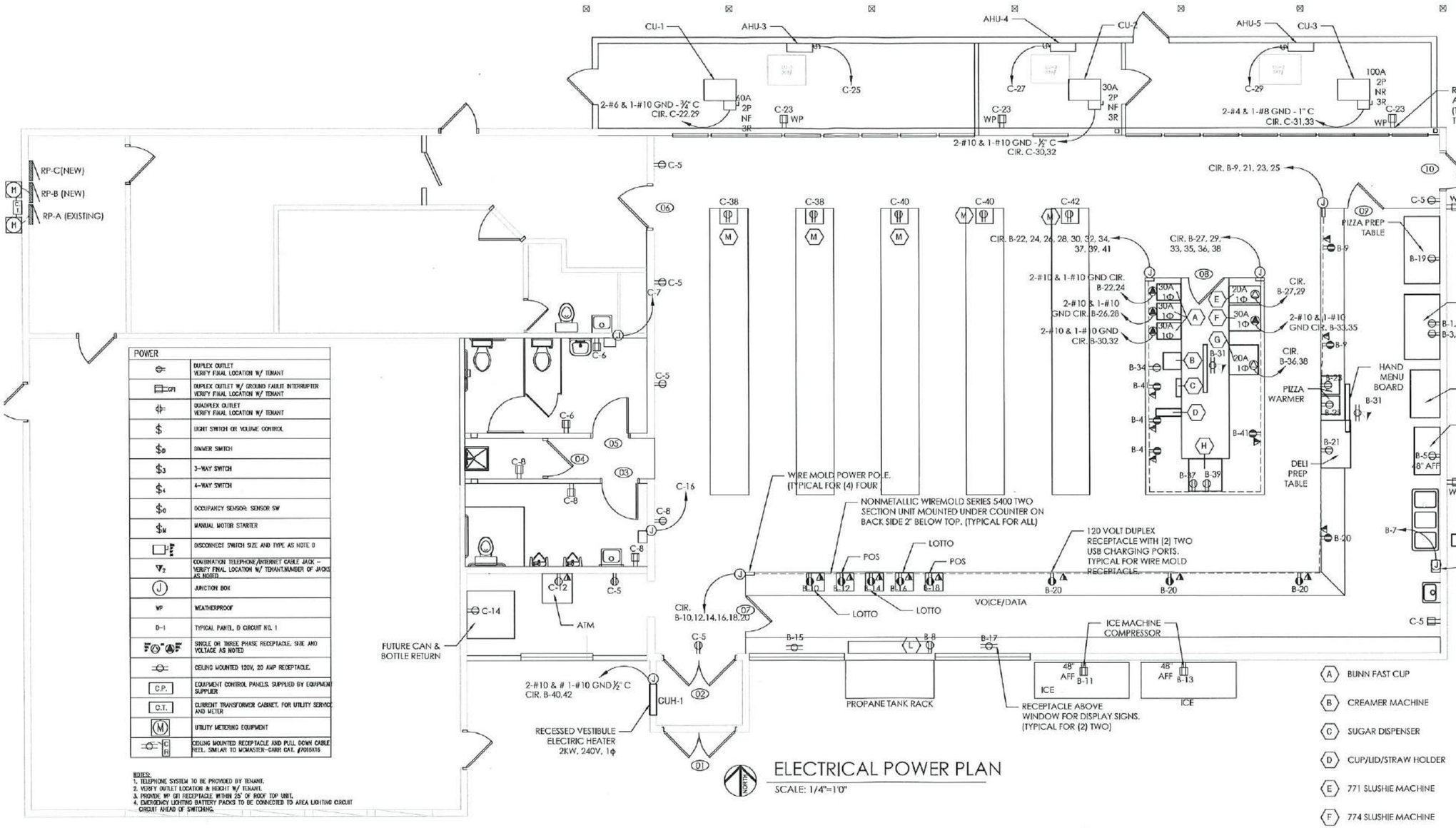
STATE OF MICHIGAN — No. 6201022031 — PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : JDK
CHECKED : JDK
SCALE :
JOB NO : TE-22-188
SHEET TITLE :
STRUCTURAL SECTIONS & DETAILS
SHEET
S-102



ELECTRICAL POWER PLAN

SCALE: 1/4"=1'0"

POWER	
⊖	DUPLEX OUTLET VERIFY FINAL LOCATION W/ TENANT
⊟GFI	DUPLEX OUTLET W/ GROUND FAULT INTERRUPTER VERIFY FINAL LOCATION W/ TENANT
⊕	QUADRUPLEX OUTLET VERIFY FINAL LOCATION W/ TENANT
$	LIGHT SWITCH OR VOLUME CONTROL
$D	DIMMER SWITCH
$3	3-WAY SWITCH
$4	4-WAY SWITCH
$O	OCCUPANCY SENSOR; SENSOR SW
$M	MANUAL MOTOR STARTER
	DISCONNECT SWITCH SIZE AND TYPE AS NOTE D
▽2	COMBINATION TELEPHONE/INTERNET CABLE JACK – VERIFY FINAL LOCATION W/ TENANT,NUMBER OF JACKS AS NOTED
(J)	JUNCTION BOX
WP	WEATHERPROOF
D-1	TYPICAL PANEL D CIRCUIT NO. 1
	SINGLE OR THREE PHASE RECEPTACLE. SIZE AND VOLTAGE AS NOTED
	CEILING MOUNTED 120V, 20 AMP RECEPTACLE.
C.P.	EQUIPMENT CONTROL PANELS. SUPPLIED BY EQUIPMENT SUPPLIER
C.T.	CURRENT TRANSFORMER CABINET. FOR UTILITY SERVICE AND METER
(M)	UTILITY METERING EQUIPMENT
C R	CEILING MOUNTED RECEPTACLE AND PULL DOWN CABLE REEL. SIMILAR TO MCMASTER-CARR CAT. #7015X16

NOTES:
1. TELEPHONE SYSTEM TO BE PROVIDED BY TENANT.
2. VERIFY OUTLET LOCATION & HEIGHT W/ TENANT.
3. PROVIDE WP GFI RECEPTACLE WITHIN 25' OF ROOF TOP UNIT.
4. EMERGENCY LIGHTING BATTERY PACKS TO BE CONNECTED TO AREA LIGHTING CIRCUIT AHEAD OF SWITCHING.

- (A) BUNN FAST CUP
- (B) CREAMER MACHINE
- (C) SUGAR DISPENSER
- (D) CUP/LID/STRAW HOLDER
- (E) 771 SLUSHIE MACHINE
- (F) 774 SLUSHIE MACHINE
- (G) POP MACHINE
- (H) SMOOTHIE DISPENSER
- (J) LOTTO
- (K) POS
- (L) CIGARETTE MACHINE
- (M) STACK LIGHTING

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STATE OF MICHIGAN — REGISTERED PROFESSIONAL ENGINEER — No. 6201022031 — 8/1/23

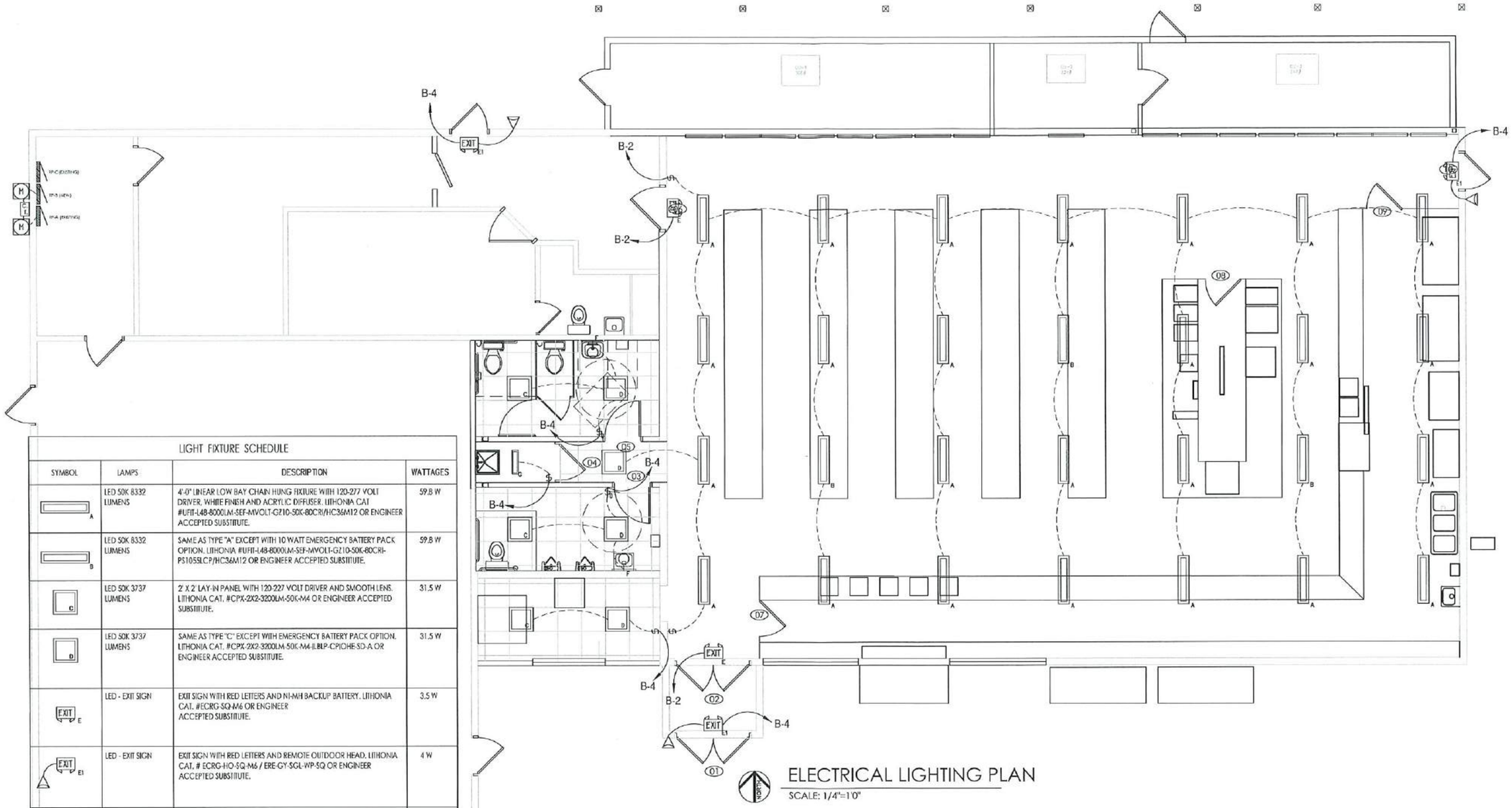
TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN : RHH
CHECKED : PDMc
SCALE : PDMc
JOB NO : TE-22-155

SHEET TITLE :
ELECTRICAL POWER PLAN

SHEET
E-100



ELECTRICAL LIGHTING PLAN

SCALE: 1/4"=1'0"

LIGHT FIXTURE SCHEDULE

SYMBOL	LAMPS	DESCRIPTION	WATTAGES
A	LED 50K 8332 LUMENS	4'-0" LINEAR LOW BAY CHAIN HUNG FIXTURE WITH 120-277 VOLT DRIVER, WHITE FINISH AND ACRYLIC DIFFUSER. LITHONIA CAT #LFIT-L48-8000LM-SEF-MVOLT-GZ10-50K-80CRI/HC36M12 OR ENGINEER ACCEPTED SUBSTITUTE.	59.8 W
B	LED 50K 8332 LUMENS	SAME AS TYPE "A" EXCEPT WITH 10 WATT EMERGENCY BATTERY PACK OPTION. LITHONIA #LFIT-L48-8000LM-SEF-MVOLT-GZ10-50K-80CRI-PS105SLCP/HC36M12 OR ENGINEER ACCEPTED SUBSTITUTE.	59.8 W
C	LED 50K 3737 LUMENS	2' X 2' LAY-IN PANEL WITH 120-227 VOLT DRIVER AND SMOOTH LENS. LITHONIA CAT. #CPX-2X2-3200LM-50K-M4 OR ENGINEER ACCEPTED SUBSTITUTE.	31.5 W
D	LED 50K 3737 LUMENS	SAME AS TYPE "C" EXCEPT WITH EMERGENCY BATTERY PACK OPTION. LITHONIA CAT. #CPX-2X2-3200LM-50K-M4-ILBLP-CPIOHE-SD-A OR ENGINEER ACCEPTED SUBSTITUTE.	31.5 W
EXIT E	LED - EXIT SIGN	EXIT SIGN WITH RED LETTERS AND NI-MH BACKUP BATTERY. LITHONIA CAT. #ECRG-SQ-M6 OR ENGINEER ACCEPTED SUBSTITUTE.	3.5 W
EXIT E1	LED - EXIT SIGN	EXIT SIGN WITH RED LETTERS AND REMOTE OUTDOOR HEAD. LITHONIA CAT. # ECRG-HO-SQ-M6 / ERE-GY-SGL-WP-SQ OR ENGINEER ACCEPTED SUBSTITUTE.	4 W
F	LED 40K 1740 LUMENS	2'-0" VANITY FIXTURE WITH 120-277 VOLT DRIVER AND SQUARE ACRYLIC DIFFUSER. LITHONIA CAT. #FMVCS-24IN-MVOLT-40K-90CRI-BN-M6 OR ENGINEER ACCEPTED SUBSTITUTE.	27 W
G	LED 35K 940 LUMENS	2'-0" STRIP FIXTURE WITH 120V DRIVER AND DIFFUSED POLYCARBONATE LENS. LITHONIA CAT. #RLNK-624-120-35K-80CRI-M4 OR ENGINEER ACCEPTED SUBSTITUTE.	8.9 W

NOTES:
1. TELEPHONE SYSTEM TO BE PROVIDED BY TENANT.
2. VERIFY OUTLET LOCATION & HEIGHT W/ TENANT.
3. PROVIDE WP GFI RECEPTACLE WITHIN 25' OF ROOF TOP UNIT.
4. EMERGENCY LIGHTING BATTERY PACKS TO BE CONNECTED TO AREA LIGHTING CIRCUIT CIRCUIT AHEAD OF SWITCHING.

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STATE OF MICHIGAN
REGISTERED PROFESSIONAL ENGINEER
No. 6201022031
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN : RJH
CHECKED : PGMc
SCALE : PGMc
JOB NO : TE-22-168

SHEET TITLE :
ELECTRICAL LIGHTING PLAN
SHEET
E-101

TE-22-168 TYRONE TWP. PARTY STORE, 09262022

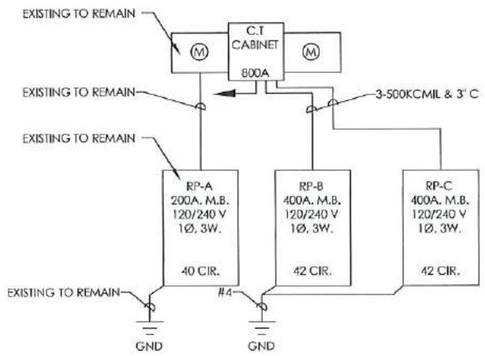
PANELBOARD DESIGNATION / TAG:	RP-B (NEW)	LOCATION:	UTILITY ROOM	Options:		Options:	
ELECTRICAL CHARACTERISTICS:	120/240v - 1ph - 3w	FEEDER SIZE:	400A - 3#500 kcmil & 1#2 Gnd - 3"C		SUB-FEED LUGS		MULTIPLE SECTIONS
PANELBOARD CONSTRUCTION:	CIRCUIT BREAKER	FED FROM:	UTILITY		SUB-FEED BREAKER	NONE	TVSS
AMP MAIN LUGS	22k A.I.C. (FULLY RATED)	SURFACE	MOUNTING		FEED-THRU LUGS	PLUG-IN	BREAKERS
400 AMP MAIN BREAKER/SWITCH	100 % NEUTRAL (SOLID)	NEMA 1	ENCLOSURE	X	SERVICE ENTRANCE RATED	UP TO 500 kcmil	MAIN TERMINAL LUGS
42 AVAILABLE CIRCUIT SPACES	INCOMING FEED		MISC		100% RATING		
L After the circuit no. indicates handle locking device.							

	LOAD DESCRIPTION	VOLT AMPS A	VOLT AMPS B	CIRCUIT POLE	CIRCUIT AMP	WIRE SIZE		CIRCUIT AMP	CIRCUIT POLE	VOLT AMPS A	VOLT AMPS B	LOAD DESCRIPTION	
1	PIZZA OVEN	840		1	15	#14	#12	20	1	1713		STORE LIGHTING	2
3	PIZZA OVEN		840	1	15	#14	#12	20	1		234	RESTROOM/VESTIBLE LIGHTING	4
5	STAND UP REFRIGERATOR	1221		1	15*	#14	#12	20	1	1500		ATM RECEPTACLE	6
7	PIZZA AREA HAND DRYER		1920	1	20*	#12	#12	20	1		1500	CIGARETTE MACHINE	8
9	PIZZA COUNTER RECEPTACLES	360		1	20	#12	#12	20	1	180		SALES COUNTER RECEPTACLES	10
11	ICE MACHINE COMPRESSOR		1224	1	20*	#12	#12	20	1		180	SALES COUNTER RECEPTACLES	12
13	ICE MACHINE COMPRESSOR	1224		1	20*	#12	#12	20	1	180		SALES COUNTER RECEPTACLES	14
15	WINDOW SIGN RECEPTACLE		180	1	20	#12	#12	20	1		180	SALES COUNTER RECEPTACLES	16
17	WINDOW SIGN RECEPTACLE	180		1	20	#12	#12	20	1	180		SALES COUNTER RECEPTACLES	18
19	PIZZA PREP TABLE		850	1	20	#12	#12	20	1		720	SALES COUNTER RECEPTACLES	20
21	DELI PREP TABLE	850		1	20	#12	#10	30	2	2496		BUNN COFFEE MAKER, UNIT "A"	22
23	PIZZA WARMER		1800	1	20	#12	#10	30			2496		24
25	PIZZA WARMER	1800		1	20	#12	#10	30	2	2496		BUNN COFFEE MAKER, UNIT "A"	26
27	771 MULTI-FLAVOR, UNIT "E"		1664	2	20	#12	#10	30			2496		28
29		1664			20	#12	#10	30	2	2496		BUNN COFFEE MAKER, UNIT "A"	30
31	HANGING MENU BOARDS		1000	1	20	#12	#10	30			2496		32
33	774 MULTI-FLAVOR, UNIT "F"	2500		2	30	#10	#12	20	1	1500		CREAMER, UNIT "B"	34
35			2500		30	#10	#12	20	2		1500	POP MACHINE, UNIT "G"	36
37	SMOOTHIE BLENDER, UNIT "H"	1500		1	15	#14	#12	20		1500			38
39	SMOOTHIE FREEZER, UNIT "H"		1500	1	15	#14	#10	30	2		2000	VESTIBULE HEATER	40
41	CENTER COUNTER RECEPTACLES	720		1	20	#12	#10	30					42
	SUB TOTAL VA	12,862	13,478							14,241	13,802	SUB TOTAL VA	
	PHASE TOTALS	A	B	Circuit wire size(s) indicated are									
	TOTAL PHASE VA	27,103	27,280	minimum allowable. Refer to wire						226.6		CONNECTED AMPS (Balanced)	
	TOTAL PHASE AMPS	225.9	227.3	sizing Table(s) and one-line diagram(s)						159.3		PHASE DEMAND AMPS (Balanced)	
	TOTAL CONNECTED KVA	54.383		on plan(s) additional information						38.23		TOTAL DEMAND KVA	

TE-22-168 TYRONE TWP. PARTY STORE, 09072022

PANELBOARD DESIGNATION / TAG:	RP-C (NEW)	LOCATION:	UTILITY ROOM	Options:		Options:	
ELECTRICAL CHARACTERISTICS:	120/240v - 1ph - 3w	FEEDER SIZE:	400A - 3#500 kcmil & 1#2 Gnd - 3"C		SUB-FEED LUGS		MULTIPLE SECTIONS
PANELBOARD CONSTRUCTION:	CIRCUIT BREAKER	FED FROM:	RP-B		SUB-FEED BREAKER	NONE	TVSS
AMP MAIN LUGS	22k A.I.C. (FULLY RATED)	SURFACE	MOUNTING		FEED-THRU LUGS	PLUG-IN	BREAKERS
400 AMP MAIN BREAKER/SWITCH	100 % NEUTRAL (SOLID)	NEMA 1	ENCLOSURE	X	SERVICE ENTRANCE RATED	UP TO 500 kcmil	MAIN TERMINAL LUGS
42 AVAILABLE CIRCUIT SPACES	INCOMING FEED		MISC		100% RATING		
L After the circuit no. indicates handle locking device.							

	LOAD DESCRIPTION	VOLT AMPS A	VOLT AMPS B	CIRCUIT POLE	CIRCUIT AMP	WIRE SIZE		CIRCUIT AMP	CIRCUIT POLE	VOLT AMPS A	VOLT AMPS B	LOAD DESCRIPTION	
1	SEPTIC (EXISTING)	1800		1	20	#12	#12	20	1	1800		EXISTING FLOOD LIGHTS	2
3	OFFICE RECEPTACLES (EXISTING)		1800	1	20	#12	#12	20	1		1760	FURNACE (EXISTING)	4
5	AREA RECEPTACLES	1440		1	20	#12	#12	20	1	360		WOMENS RESTROOM RECEPTACLES	6
7	WOMENS RESTROOM HAND DRYER		1920	1	20^	#12	#12	20	1		540	MENS RESTROOM RECEPTACLES	8
9	EXISTING FLOOD LIGHTS	1800		1	20	#12	#12	20	1	1800		OFFICE FANS	10
11	EXISTING FLOOD LIGHTS		1800	1	20	#12	#12	20	1		1500	ATM RECEPTACLE	12
13	HALLWAY RECEPTACLES (EXISTING)	1800		1	20	#12	#12	20	1	1500		CAN & BOTLE RETURN	14
15	BACK ROOM RECEPTACLES (EXISTING)		1800	1	20	#12	#12	20^	1		1920	MENS RESTROOM HAND DRYER	16
17	BACK ROOM RECEPTACLES (EXISTING)	1800		1	20	#12	#12	20	2	1800		WELL (EXISTING)	18
19	OFFICE LIGHTING (EXISTING)		1800	1	20	#12	#12	20			1800		20
21	OFFICE REFRIGERATOR (EXISTING)	850		1	20^	#12	#6	50*	2	4200		CU-1, 12 TON	22
23	OUTDOOR RECEPTACLES		900	1	20	#12	#6	50*			4200		24
25	AHU-3, 12 TON	270		1	15	#14	#10	30	2	2800		GRINDER PUMP (EXISTING)	26
27	AHU-4, 1 1/2 TON		180	1	15	#14	#10	30			2800		28
29	AHU-5, 7.5 TON	270		1	15	#14	#10	25*	2	1908		CU-2, 1 1/2 TON	30
31	CU-3, 7.5 TON		5064	2	70*	#4	#10	25*			1908		32
33		5064			70*	#4	#6	60*	2	5040		AHU-1, 5 TON	34
35	AHU-2, 5 TON		5040	2	60*	#6	#6	60*			5040		36
37		5040			60*	#6	#12	20	1	1500		STACK LIGHTING	38
39	SPACE			1	20		#12	20	1		1500	STACK LIGHTING	40
41	SPACE			1	20		#12	20	1	750		STACK LIGHTING	42
	SUB TOTAL VA	20,134	20,304							22,706	22,908	SUB TOTAL VA	
	PHASE TOTALS	A	B	Circuit wire size(s) indicated are									
	TOTAL PHASE VA	42,842	43,272	minimum allowable. Refer to wire						358.8		CONNECTED AMPS (Balanced)	
	TOTAL PHASE AMPS	357.0	360.6	sizing Table(s) and one-line diagram(s)						320.1		PHASE DEMAND AMPS (Balanced)	
	TOTAL CONNECTED KVA	86.114		on plan(s) additional information						76.83		TOTAL DEMAND KVA	



120/240V, 1Ø,3w, RISER DIAGRAM

N.T.S.

LOAD TABULATION:

	CONNECTED	DEMAND
RECEPTACLES	12.600KW	10.940KW
LIGHTING	15.397KW	15.397KW
HVAC	50.784KW	38.596KW
MISC.	68.566KW	41.140KW
TOTALS	147.347KW	106.073KW
AMPS	631.9A	442.0A

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www.triumpheng.com

STATE OF MICHIGAN — JOSEPH A. BAKER — No. 6201022031 — REGISTERED PROFESSIONAL ENGINEER
8/7/23

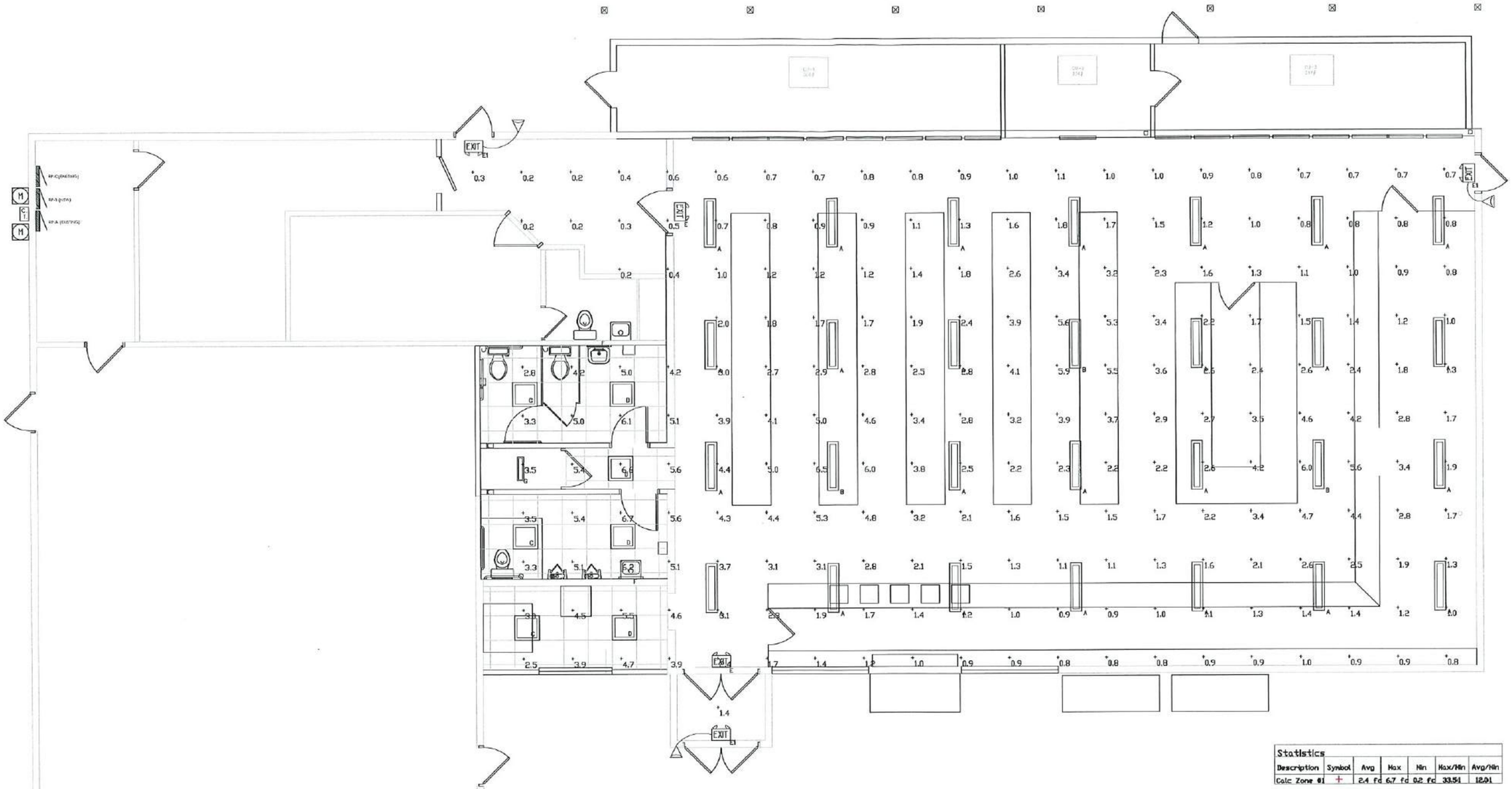
TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/28/2023

DRAWN : RSH
CHECKED : PMM
SCALE : NONE
JOB NO : TE-22-168

SHEET TITLE :
ELECTRICAL PANEL SCHEDULES

SHEET
E-102



EMERGENCY LIGHTING PLAN

SCALE: 1/4"=1'0"

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STATE OF MICHIGAN
JOSEPH A. SCHAFER
No. 6201022031
LICENSED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ENGINEER:
JOSEPH A. SCHAFER
STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER

ISSUED FOR	DATE
PERMITS	07/25/2023

DRAWN : RSH
CHECKED : PGMc
SCALE : 1/4" = 1'-0"
JOB NO : TE-22-155

SHEET TITLE :
EMERGENCY LIGHTING PLAN
SHEET
E-103

GENERAL CONSTRUCTION NOTES

1. CONTRACTOR IS RESPONSIBLE TO VISIT THE JOB SITE TO VERIFY EXISTING CONDITIONS AND THE OWNERS REQUIREMENTS FOR ACCESS TO THE SITE AND CONTINUED OPERATION DURING CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, PRESSURES, ACTIVE / INACTIVE SERVICE, ROUTING, ABANDONED EQUIPMENT, DIRECTION OF FLOW, AND ALL INTERFERENCES BEFORE FABRICATION AND INSTALLATION OF NEW INSTALLATION. THIS WORK TO BE COORDINATED WITH OWNER AND OTHER CONTRACTORS WORKING IN THE SAME AREA.

10. FOR EXISTING BUILDINGS : THE PLANS, DETAILS, DIMENSIONS AND ELEVATIONS RELATIVE TO THE EXISTING STRUCTURE HAVE BEEN TAKEN FROM AVAILABLE DRAWING DIMENSIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY SUCH DIMENSIONS, ELEVATIONS, AND DETAILS AS NECESSARY AND MAKE APPROVED ADJUSTMENTS PRIOR TO THE CONSTRUCTION OF OR ORDERING MATERIAL.

2. THESE DRAWINGS ARE DIAGRAMMATICAL AND SHOW GENERAL LAYOUT OF THE MECHANICAL AND PLUMBING SYSTEMS. THE DRAWINGS ARE NOT INTENDED TO BE SCALED NOR TO SERVE AS SHOP DRAWINGS. CONTRACTOR IS TO BE RESPONSIBLE FOR FIELD MEASURING TO ASSURE FITTING THE INSTALLATION. SHOULD THERE BE A CONFLICT IN THE DRAWINGS, THE PROJECT ARCHITECT / ENGINEER SHALL MAKE THE FINAL DETERMINATION BASED ON :
- DRAWING DETAILS PREVAIL OVER THE PLANS
- GENERAL CONDITIONS AND SUPPLEMENTS PREVAIL OVER INSTRUCTIONS TO BIDDERS
- LOCAL CODES PREVAIL OVER THE INSTALLATION
- SAFETY SHALL PREVAIL OVER ALL REQUIREMENTS

3. DUE TO LIMITED SPACE IT IS CRITICAL TO COORDINATE WITH ALL TRADES THE INSTALLATION OF MECHANICAL EQUIPMENT WITH OTHER BUILDING COMPONENTS, ARRANGEMENT OF THE PIPING AND DUCTWORK SPACES, CHASES, SLOTS, PIPE SLEEVES AND OTHER OPENINGS, DURING THE PROGRESS OF CONSTRUCTION.

4. CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS, FEES, TAXES, INSPECTIONS AND TESTING.

5. CONTRACTOR IS REQUIRED TO SUBMIT SHOP DRAWINGS TO PROJECT ARCHITECT/ENGINEER FOR APPROVAL OF ALL PRODUCT DATA, INCLUDE ITEMS SUCH AS RATED CAPACITIES, DIMENSIONS, REQUIRED CLEARANCES, WEIGHTS, ELECTRICAL REQUIREMENTS, ETC.

6. CONTRACTORS WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES AND ORDINANCES THAT MAY APPLY.

7. CONTRACTOR TO INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS. PROVIDE CERTIFICATES OF SHOP INSPECTION AND DATA REPORTS FOR EQUIPMENT AS REQUIRED.

8. CONTRACTOR TO COORDINATE ALL UTILITIES.

9. CONTRACTOR SHALL FURNISH AND INSTALL MINOR ITEMS WHICH ARE NECESSARY TO COMPLETE THE INSTALLATION AND USUALLY INCLUDED IN WORK EVEN THOUGH NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

10. PROVIDE THE SAFETY AND GOOD CONDITIONS OF MATERIAL UNTIL FINAL ACCEPTANCE BY OWNER. PROTECT MATERIALS AND EQUIPMENT FROM DAMAGE. PROVIDE ADEQUATE AND PROPER STORAGE FACILITIES DURING THE PROGRESS OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF FIXTURES AND EQUIPMENT FROM DAMAGE DURING CONSTRUCTION.

11. THE ARCHITECT / ENGINEER DOES NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, AND IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S DEFICIENCIES OR OMISSIONS TO CARRY OUT THE WORK IN ACCORDANCE WITH DOCUMENTS PREPARED BY THE ARCHITECT / ENGINEER.

12. ALL OF THE CONTRACTOR'S WORKMANSHIP MUST BE TESTED AND CERTIFIED THAT IT IS MEETING PRODUCT SPECIFICATIONS AS REQUIRED. ALL MATERIALS AND EQUIPMENT, INCLUDING NECESSARY ACCESSORIES SHALL BE PUT IN PROPER ADJUSTMENT SO THAT THE COMPONENTS PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM.

13. CONTRACTOR SHALL RECEIVE, PROPERLY HOUSE, TRANSPORT AND INSTALL AT PROPER LOCATIONS, EQUIPMENT AND MATERIALS REQUIRED FOR HIS CONTRACT. RESPONSIBILITY AND CARE AND PROTECTION OF EQUIPMENT, MATERIAL, AND WORK PERFORMED AGAINST THEFT, INJURY OF DAMAGE FROM ALL CAUSES REMAINS WITH THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE PROPERTY BY THE OWNER. PROTECT PLUMBING FIXTURES AND OTHER EQUIPMENT WITH ENAMEL OR GLAZED SURFACES FROM DAMAGE BY COVERING WITH MATERIAL APPROVED FOR THIS PURPOSE. PROTECT EQUIPMENT, OUTLETS, PIPE AND DUCT OPENINGS WITH TEMPORARY PLUGS, CAPS, BURLAP, PLASTIC OR OTHER APPROVED METHOD.

14. CONTRACTOR TO MAINTAIN EXIT AND EGRESS PATHS FREE FROM OBSTRUCTION IN THE AREA.

15. ALL CONSTRUCTION AND EXCAVATION AREAS ARE TO BE CLEARLY MARKED AND ROPED OFF.

16. CONTRACTOR TO MAINTAIN ADEQUATE FIRE SUPPRESSION SYSTEM ON SITE.

17. CONTRACTOR IS TO ENTER AND LEAVE WORK SITE AT LOCATIONS DESIGNATED BY THE OWNER. ALL MATERIALS, TOOLS, MACHINERY, PRINTS AND EQUIPMENT WILL ENTER AND LEAVE THE PROPERTY FOLLOWING OWNER'S GUIDELINES.

18. OWNER WILL ASSIGN TO THE CONTRACTOR PARKING AND MATERIAL STORAGE LOCATIONS. CONTRACTOR'S STORAGE CRIB, AND TOOL BOXES WILL ALL BE FIREPROOF CONSTRUCTION. ALL MATERIAL STORED WILL MEET THE OWNER'S SAFETY REQUIREMENTS.

19. DISPOSAL OF WASTE MATERIALS MUST BE IN ACCORDANCE WITH THE REGULATIONS SET FORTH BY STATE REGULATIONS.

20. THE CONTRACTOR WILL SUFFICIENTLY PROVIDE SAFETY BARRICADING OF THE PROJECT AREA.

CONTRACTOR'S RESPONSIBILITY

1. MAINTAIN (1) SET OF AS-BUILT CONSTRUCTION DOCUMENTS ON A SEPARATE SET OF CONSTRUCTION PRINTS WHICH SHALL REMAIN AT THE PROJECT SITE AND BE TURNED IN TO THE PROJECT ARCHITECT / ENGINEER AT COMPLETION OF PROJECT.

2. PROVIDE WIRING DIAGRAMS FOR EACH ACCESSORY SPECIALITY ITEM WITH ELECTRIC POWER SUPPLY, INCLUDE LADDER TYPE WIRING DIAGRAM FOR INTERLOCK AND CONTROL WIRING REQUIRED FOR FINAL INSTALLATION. DIFFERENTIATE BETWEEN FACTORY INSTALLED AND FIELD INSTALLED WIRING.

SUBMITTALS

A. SUBMITTAL REVIEW: REVIEW OF SHOP DRAWINGS AND PRODUCT DATA IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. IN THE EVENT OF VARIATION IN INFORMATION PROVIDED IN THE SUBMITTAL AND INFORMATION GIVEN IN THE DRAWINGS AND SPECIFICATIONS; THE DRAWINGS AND SPECIFICATION SHALL COVERN. SHOP DRAWING AND PRODUCT DATA SUBMITTAL PACKAGES ARE NOT CONTRACT DOCUMENTS AND SHALL NOT ACT TO MODIFY ANY CONTRACT REQUIREMENT.

B. SUBMIT PRODUCT DATA AND SHOP DRAWINGS FOR ALL PRODUCTS AND MATERIALS TO BE INCORPORATED INTO THE FINAL PRODUCT. ONE (1) COPY OF SUBMITTALS AND SHOP DRAWINGS WITH REVIEW COMMENT SHALL BE RETURNED; ADDITIONAL COPIES SHALL BE MADE BY THE CONTRACTOR. SUBMITTALS AND SHOP DRAWINGS NOT COMPLYING WITH THE FOLLOWING REQUIREMENTS SHALL BE RETURNED WITHOUT REVIEW. INCLUDE THE FOLLOWING:

1. PROVIDE SUBMITTALS AND SHOP DRAWINGS ONLY FOR PRODUCTS LISTED WITHIN THESE SPECIFICATIONS, OR PRODUCTS APPROVED IN WRITING PRIOR TO BIDDING FOR INCORPORATION IN THIS PROJECT.

2. REVIEW AND APPROVE DOCUMENTS PRIOR TO SUBMITTING. STAMP, DATE, AND INITIAL EACH COPY INDICATING REVIEW IS COMPLETE.

3. SUBMITTALS FOR PRODUCTS AND EQUIPMENT REQUIRING ACTUATION OR CONNECTIONS BY THE CONTROL CONTRACTOR SHALL BE REVIEWED BY THE CONTROL CONTRACTOR PRIOR TO SUBMITTING. STAMP, DATE, AND INITIAL EACH COPY INDICATING REVIEW IS COMPLETE.

4. INDICATE ONLY EXACT INFORMATION PERTAINING TO PRODUCT TO BE SUPPLIED. INCLUDE THE FOLLOWING:
A. PLAN DESIGNATION
B. MODEL
C. CAPACITIES.
D. OPTIONS PROVIDED: INDICATE ONLY OPTIONS SPECIFIC TO THE EQUIPMENT PROVIDED FOR THIS PROJECT.
E. DIMENSIONS: INDICATE ALL NECESSARY DIMENSIONS. INCLUDE THE FOLLOWING:
1) MAXIMUM HEIGHT, WIDTH, AND DEPTH.
2) CLEARANCE FOR OPERATION.
3) CLEARANCE FOR MAINTENANCE AND SERVICE.
4) DIMENSIONS TO OPENINGS, CONNECTIONS, AND DIVISIONS.
5) ROUGH-IN CLEARANCES AND OPENINGS.
6) MOUNTING SURFACE AND CONNECTION DIMENSIONS.

F. WEIGHT: INDICATE POINT LOADS AND CENTER OF GRAVITY IF WEIGHT IS NOT UNIFORMLY DISTRIBUTED.

G. INSTALLATION AND START-UP INSTRUCTIONS AND REQUIREMENTS.

H. STORAGE AND HANDLING INSTRUCTIONS.
I. ELECTRICAL REQUIREMENTS.
J. WIRING DIAGRAMS.
K. OPERATION AND MAINTENANCE INSTRUCTIONS.
L. WARRANTY.

5. SUBMIT PRODUCT DATA FOR ALL EQUIPMENT, PRODUCTS, AND MATERIALS TO BE INCORPORATED INTO THE PROJECT.

6. SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT, PRODUCTS, AND MATERIALS REQUIRING COORDINATION WITH OTHER TRADES, ELECTRICAL OR CONTROL CONNECTIONS, REQUIRING STRUCTURAL SUPPORT, REQUIRING ROUGH-INS, OR OTHER DATA ONLY PRESENTABLE IN DRAWING FORM.

QUALITY ASSURANCE

A. REFERENCE STANDARDS: INCORPORATE THE ADOPTED EDITION WITH AMENDMENTS, OR LATEST EDITION OF THE FOLLOWING:
1. MODEL BUILDING CODES ADOPTED BY THE GOVERNING AUTHORITY HAVING JURISDICTION (AHJ).
2. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
3. AMERICANS DISABILITY ACT (ADA).
4. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
5. ENVIRONMENTAL PROTECTION AGENCY (EPA).
6. UNDERWRITERS LABORATORIES (UL) AND UNDERWRITERS LABORATORIES OF CANADA (ULC) LISTING AND LABELS.
7. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
8. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
9. AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE).
10. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
11. AMERICAN SOCIETY OF PLUMBING ENGINEERS (ASPE).
12. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE).
13. NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION (NEMA).
14. ELECTRONICS INDUSTRIES ASSOCIATION (EIA).
15. SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA).
16. AMERICAN GAS ASSOCIATION (AGA).
17. AMERICAN PIPE FITTINGS ASSOCIATION (APFA).
18. AMERICAN SOCIETY OF SANITARY ENGINEERS (ASSE).
19. AMERICAN WELDING SOCIETY (AWS).
20. AMERICAN WATER WORKS ASSOCIATION (AWWA).
21. COPPER DEVELOPMENT ASSOCIATION (CDA).
22. COMPRESSED GAS ASSOCIATION (CGA).
23. GAS APPLIANCE MANUFACTURERS ASSOCIATION (GAMA).
24. NATIONAL SANITATION FOUNDATION (NSF).
25. PLASTIC PIPE AND FITTING ASSOCIATION (PPFA).
26. PLASTIC PIPE INSTITUTE (PPI).
27. NATIONAL INSULATION ASSOCIATION (NIA).
28. NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA).
29. NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
30. TESTING ADJUSTING AND BALANCING BUREAU (TABB).
31. MANUFACTURERS STANDARDIZATIONS SOCIETY (MSS).
32. MECHANICAL CONTRACTORS ASSOCIATION OF AMERICA (MCAA).
33. AIR DIFFUSION COUNCIL (ADC).
34. AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA).
35. MANUFACTURERS INSTALLATION DATA.

CONTRACTOR'S RESPONSIBILITY - SAFETY

1. THE CONTRACTOR MUST PROVIDE AND MAINTAIN ALL WORK AREA AND CONSTRUCTION FACILITIES IN ACCORDANCE WITH CURRENT REGULATIONS AND OWNER'S SAFETY EQUIPMENTS. FOLLOWING IS A PARTIAL LIST :
A. APPROVED HARD HATS AND SAFETY GLASSES WITH SIDE SHIELDS WILL BE WORN IN THE PROJECT AREA.
B. WHEN TRANSPORTING MATERIALS WITHIN AREA, PEDESTRIANS HAVE THE RIGHT OF WAY.
C. APPROVED EXHAUST SCRUBBERS OR OUTSIDE EXHAUST MANIFOLD MUST BE PROVIDED FOR ALL FOSSIL FUEL ENGINES OPERATED INSIDE.
D. FURNISH AND / OR MAINTAIN GUARD RAIL WITH DOUBLE ½" HAND RAIL AND CONTINUOUS 4" HIGH KICK PLATE AROUND ANY OPENING.
E. ALL CONTRACTORS MUST ABIDE BY THE OWNERS SAFETY REQUIREMENTS, AND THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT.
F. ALL LADDERS MUST BE EQUIPPED WITH NON-SKID SAFETY PADS AND BE CONSTRUCTED OF MATERIAL THAT IS NON-CONDUCTIVE.
G. THE CONTRACTOR IS TO PROVIDE UPRIGHT STORAGE RACKS FOR ACETYLENE AND OXYGEN BOTTLES TO BE USED DURING THE PROJECT. THESE CONTAINER SHALL BE PROPERLY MARKED AS TO THE APPROPRIATE CONTENTS. NO UNLABELED CYLINDERS SHALL BE USED. COMPRESSED GAS CYLINDERS MUST BE TRANSPORTED IN AN UPRIGHT POSITIONS AND PROPERLY SECURED.
H. CONTRACTOR IS TO BE RESPONSIBLE FOR HIS OWN TOOLS AND EQUIPMENT AND SECURE THEM AT THE END OF THE DAY. CONTRACTOR IS NOT TO USE ANY OF THE OWNER'S TOOLS OR EQUIPMENT.
I. CONTRACTOR SHALL PROVIDE ITS OWN FIRST AID EQUIPMENT AND THE MEANS FOR PROVIDING MEDICAL CARE OF HIS PERSONNEL.
J. CONTRACTOR TO PROVIDE WEEKLY SAFETY MEETING FOR THEIR EMPLOYEES WHILE WORKING ON SITE.

CONTRACTOR'S RESPONSIBILITY - COMPLETION OF WORK

1. AT COMPLETION OF THIS PROJECT THE CONTRACTOR IS TO FURNISH TO THE OWNER ALL KEYS, (3) COPIES OF OPERATING MANUALS, SERVICE MANUALS, INSTALLATION MANUALS, ETC., AND PROVIDE INSTRUCTION AND TRAINING ON SYSTEMS OPERATION AND PERIODIC MAINTENANCE OF ALL EQUIPMENT. INSTRUCTIONS SHALL BE CONTAINED IN A HARD COVER TYPE THREE RING BINDER AND SHALL CONTAIN SAVE TYPE OF PAPER FOR ALL SHEETS. INSTRUCTIONS SHALL CONSIST OF THE FOLLOWING :
A. DESCRIPTION OF THE SYSTEM
B. INSTALLATION AND OPERATING INSTRUCTIONS
C. MAINTENANCE REQUIREMENTS FRO ALL EQUIPMENT
D. CONTROLS AND ADJUSTMENTS
E. PARTS LISTS
F. SYSTEM ELECTRICAL WIRING DIAGRAMS

2. MATERIALS AND EQUIPMENT PROVIDED AND / OR INSTALLED SHALL BE GUARANTEED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO DEFECTIVE MATERIAL OR FAULTY WORKMANSHIP, OR INTERIOR WORKMANSHIP NOTICED AT THE TIME OF INSTALLATION, THE CONTRACTOR SHALL FURNISH NECESSARY LABOR AND MATERIALS TO IMMEDIATELY CORRECT TO THE SATISFACTION OF THE OWNER.

3. ALL RUBBISH IS TO BE REMOVED FROM THE SITE AND THE PROJECT AREA LEFT CLEAN TO THE SATISFACTION OF THE OWNER. VERIFY WITH OWNER DISPOSAL OF SALVAGEABLE ITEMS.

4. ALL DUCTWORK SHALL BE THOROUGHLY CLEANED AND VACUUMED AT COMPLETION OF JOB. ALL CLEANABLE AIR FILTERS SHALL BE THOROUGHLY WASHED, RECHARGED AND REINSTALLED AT COMPLETION OF JOB. ALL REPLACEABLE TYPE AIR FILTERS SHALL BE REPLACED WITH NEW FILTERS.

5. ALL EQUIPMENT TO BE CLEANED, NAMEPLATES SHALL BE CLEANED FOR READABILITY. REMOVE PAINT SWEARS. WHEN NAMEPLATES ARE ILLEGIBLE, ARRANGE FOR REPLACEMENT BY EQUIPMENT MANUFACTURER. FIXTURES, PIPING, FINISHED SURFACES AND EQUIPMENT SHALL HAVE ALL GREASE, ADHESIVE LABELS AND FOREIGN MATERIALS REMOVED.

6. LABEL ALL MECHANICAL EQUIPMENT WITH PERMANENT IDENTIFICATION AFFIXED TO EACH PIECE OF EQUIPMENT AND ASSOCIATED ELECTRICAL DISCONNECT.

7. CHECK IDENTIFICATION, INSTRUCTIONS AND WIRING LABELS AND DIRECTIONAL ARROWS. APPLY CORRECTED LABELS AND ARROWS WHERE ERRORS ARE FOUND.

ABBREVIATIONS

PLUMBING		MECHANICAL	
BFP	PREVENTER	AD	ACCESS DOOR
BT	BATHTUB	AHU	AIR HANDLING UNIT
		AP	ACCESS PANEL
CA	COMPRESSED AIR		
CD	CONDENSATE DRAIN	BHP	BRAKE HORSE POWER
CO	CLEANOUT		
CR	CONDENSATE RETURN	CA	COMBUSTION AIR
CW	CITY WATER (COLD WATER	CD	CEILING DIFFUSER
		CHWP	CHILLED WATER PUMP
DCO	DOUBLE CLEANOUT	CHWR	CHILLED WATER RETURN
DF	DRINKING FOUNTAIN	CHWS	CHILLED WATER SUPPLY
DFU	DRAINAGE FIXTURE UNIT	CU	CONDENSING UNIT
DS	DOWN SPOUT		
DW	DISHWASHER	EA	EXHAUST AIR
		EBBH	ELECTRIC BASEBOARD HEATER
EW	EYEWASH	EG	EXHAUST GRILLE
		ER	EXHAUST REGISTER
FD	FLOOR DRAIN	EUH	ELECTRIC UNIT HEATER
FS	FLOOR SINK	EAT	ENTERING AIR TEMP EXATURE
		EDB	ENTERING DRY BULB TEMPERATURE
GCO	GRADE CLEANOUT	EWB	ENTERING WT BULB TEMPERATURE
GW	GREASE WASTE	EF	EXHAUST FAN
HB	HOSE BIBB	F	FURNACE
HWR	HOT WATER RETURN	FA	FRESH AIR
		FCU	FAN COIL UNIT
LAV	LAVATORY	FD	FIRE DAMPER
		FSD	FIRE / SMOKE DAMPER
NG	NATURAL GAS		
		HPS	HIGH PRESSURE STEAM SUPPLY
ORD	OVERFLOW ROOF DRAIN	HPR	HIGH PRESSURE STEAM RETURN
		HRU	HEAT RECOVERY UNIT
PRV	PRESSURE REDUCING VALVE	HWR	HEATING HOT WATER RETURN
		HWS	HEATING HOT WATER SUPPLY
RD	ROOF DRAIN		
		LAT	LEAVING AIR TEMPERATURE
SAN	SANITARY	LDB	LEAVING DRY BULB TEMPERATURE
STM	STEAM	LPS	LOW PRESSURE STEAM
STRM	STORM	LWB	LEAVING WET BULB TEMPERATURE
UR	URINAL	MA	MIXED AIR
		MD	MOTORIZED DAMPER
V	VENT		
VTR	VENT-THRU ROOF	OSA	OUTSIDE AIR
		OSAT	OUTSIDE AIR TEMPERATURE
WC	WATER CLOSET		
WCO	WALL CLEANOUT	RA	RETURN AIR
		RD	RETURN GRILLE
		RR	RETURN REGISTER
		SAC	SPLIT AC SYSTEM
		SP	STATIC PRESSURE
		SA	SUPPLY AIR
		SG	SUPPLY GRILLE
		SR	SUPPLY REGISTER
		TG	TRANSFER GRILLE
		TSTAT	THERMOSTAT
		VD	VOLUME DAMPER

MECHANICAL SYMBOLS

HVAC SYMBOLS

SENSOR - TEMPERATURE
SENSOR - HUMIDITY
SMOKE DETECTOR
SUPPLY DIFFUSER
LINEAR SUPPLY DIFFUSER
RETURN GRILLE
EXHAUST GRILLE
SUPPLY DUCT UP
SUPPLY DUCT DOWN
RETURN DUCT UP
RETURN DUCT DOWN
VAV BOX
SUPPLY AIR
RETURN AIR
FLEXIBLE DUCT

SUPPLY DIFFUSER (TYPE, NECK SIZE / OR LEE SIZE, CFM)
EQUIPMENT LABEL (EQUIPMENT TAG, EQUIPMENT TAG NUMBER)

GENERAL SYMBOLS

ITEM TO BE REMOVED
EXISTING
NEW

PLUMBING SYMBOLS

SANITARY PIPING
VENT PIPING
STORM PIPING
COLD WATER
HOT WATER
RECIRCULATING HOT WATER
GAS
ELBOW DOWN
ELBOW UP
VALVE ON RISER
TEE OFF TOP
TEE OFF BOTTOM
UNION
FLANGED CONNECTION
GROOVED END CONNECTION
GATE VALVE
GLOBE VALVE
BALL VALVE
BUTTERFLY VALVE
PLUG VALVE
CHECK VALVE
3-WAY VALVE
BALANCING VALVE
SCHRADER DIFFERENTIAL PRESSURE PORT
CIRCUIT SETTER
TRIPLE DUTY VALVE
STRAINER WITH BLOW OFF VALVE
MOTORIZED CONTROL VALVE
PRESSURE REDUCING VALVE
3-WAY CONTROL VALVE
ANGLE VALVE
EXPANSION JOINT
FLOW METER
FLOW VENTURI
SOLENOID VALVE
THERMOMETER
SHOCK ABSORBER
PRESSURE GAUGE
FLEXIBLE CONNECTION
PRESSURE RELIEF VALVE
CONCENTRIC REDUCER
ECCENTRIC REDUCER
PIPE CAP
DIRECTION OF FLOW
DIRECTION OF SLOPE w/ AMOUNT OF PITCH PER FOOT
BACKFLOW PREVENTER
CLEANOUT
FLOOR DRAIN

MECHANICAL VENTILATION SYMBOLS

VAV BOX w/REHEAT COIL
DUCT TURNING UP AND DOWN WITH MITERED ELBOW
TYPICAL BRANCH TAKEOFF
HORIZONTAL SPLIT TAKEOFF
RISE OR DROP IN DIRECTION OF AIR FLOW
BUTTED TAKEOFFS AND DUCT BRANCHES
TWO SIDED EXPANSION OR CONTRACTION
ONE SIDED EXPANSION OR CONTRACTION
DAMPERS
VAV BOX w/ REHEAT COIL
DIFFUSER OR GRILLE IN BOTTOM OF DUCT
DUCT w/ INTERNAL SOUND INSULATION

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STATE OF MICHIGAN — JOHN C. TRIMMER — No. 6201022031 — REGISTERED PROFESSIONAL ENGINEER
8/1/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ARCHITECT TRIUMPH ENGINEERING & DESIGN, INC.
10775 S. SAGINAW ST. GRAND BLANC, MI 48439

ISSUED FOR	DATE
PERMITS	07/28/2023

DRAWN : RHH
CHECKED : PDMc
SCALE : PDMc
JOB NO : TE-22-158

SHEET TITLE :
HVAC NOTES

SHEET
M-001

DUCTWORK - DELIVERY, STORAGE AND HANDLING

1. PROTECT ALL DUCTWORK, FLANGES, FITTINGS AND SPECIALTIES FROM WEATHER, MOISTURE, DIRT AND DAMAGE RESULTING FROM OTHER CAUSES SUCH AS TOOL IMPACT, ACCIDENTS, CARELESSNESS OR ABUSE. ELEVATE ABOVE GRADE. DO NOT EXCEED STRUCTURAL CAPACITY OF FLOOR, IF STORED INSIDE.

HVAC CONSTRUCTION NOTES

1. FABRICATION AND INSTALLATION AND OF ALL DUCTWORK SHALL CONFORM TO SMACNA DUCT STANDARDS, ASHRAE HANDBOOKS AND LOCAL CODES.

GUIDELINES FOR DUCTWORK SIZING AT 0.10" W.C. PER 100 FT:
MAIN SUPPLY DUCTS : 2,000 FPM
BRANCH DUCTS : 1,500 FPM
RETURN AND EXHAUST DUCTS : 1,500 FPM
ROOM TERMINAL AIR DEVICES : 800 FPM

ROUND DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL STEEL, SIZED AS SHOWN :

SIZE	GAUGE
14" AND SMALLER	24
16" TO 36"	22
38" TO 50"	20
52" TO 60"	18

RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL STEEL, SIZED AS SHOWN :

DIMENSION OF LONGEST SIDE	GAUGE
UP TO 18"	24
20" TO 48"	22
50" TO 72"	20
74" AND OVER	18

2. COORDINATE LOCATIONS OF DUCTS WITH EXISTING STRUCTURE, PLUMBING, LIGHTS, SPRINKLERS, CONDUIT EQUIPMENT AND ALL FIELD CONDITIONS AND OTHER TRADES.

3. COORDINATE LOCATION OF REGISTERS, GRILLES, AND DIFFUSERS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN AND ELECTRICAL DRAWINGS. CENTER GRILLES AND DIFFUSERS IN CEILING TILES.

4. FOR DUCTWORK ELBOWS USE LONG RADIUS ELBOWS WITH A CENTERLINE RADIUS EQUAL TO (2) TIMES THE DUCT DIAMETER ON ROUND DUCT, AND ELBOW WIDTH ON RECTANGULAR DUCT. AT SQUARE ELBOWS GREATER THAN 45 DEGREES USE TURNING VANES.

5. FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT POINTS WHERE DUCTS CONNECT TO AIR HANDLING EQUIPMENT OR OTHER EQUIPMENT TO MINIMIZE TRANSMISSIONS OF MECHANICAL VIBRATION IN DUCTWORK. ALL FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS.

6. PROVIDE FIRE STOP IN WALL, FLOOR, AND CEILING PENETRATIONS WHERE REQUIRED TO MAINTAIN FIRE SEPARATION.

7. SEAL SUPPLY AND RETURN JOINTS AND SEAMS WITH HARD-CAST DUCT SEALANT.

8. SUPPLY AND RETURN DUCT TO BE INSULATED UNLESS INDICATED OTHERWISE WITH 1-1/2" THICK, BLANKET-TYPE, FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, 2" STAPLING AND TAPING FLANGE ALONG ONE EDGE. INSULATION : ASTM C553, DENSITY OF 0.75, CONDUCTIVITY OF 0.23 @75F. VAPOR BARRIER : LAMINATED WHITE KRAFT PAPER, ALUMINUM FOIL, GLASS FIBER REINFORCEMENT, PERMEANCE OF 0.02, AND PUNCTURE RESISTANCE OF 50 UNITS. COMPOSITE FLAMES SPREAD / SMOKE DENSITY OF 25/50. APPROVED MANUFACTURERS : CERTAINTEED, JOHNS MANSVILLE, KNAUF, OWENS/CORNING.

9. FOR EXTERIOR ROOF MOUNTED DUCTWORK PROVIDE 1" MINIMUM RIGID PHENOLIC INSULATION AND UV RESISTANT ALUMINUM JACKET WITH WATERPROOF SEAMS.

10. ALL SUPPLY AND OUTSIDE AIR DUCTS FROM MAKE UP AIR UNITS SHALL BE LINED WITH ACOUSTICAL DUCT INSULATION FROM UNIT CONNECTION TO TEN FEET INTO THE SYSTEM. DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS, ADJUST DUCT SIZES FOR LINING.

11. FLEXIBLE DUCT IS NOT ALLOWED ON RETURN AND EXHAUST SYSTEMS.

12. PROVIDE VOLUME DAMPERS IN ALL TAKEOFFS TO ALL DIFFUSERS.

13. CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED WITH SUFFICIENT CLEARANCE FOR FUTURE MAINTENANCE. FOLLOW THE MANUFACTURE'S RECOMMENDATIONS FOR INSTALLATION.

14. PROVIDE CONDENSATE PIPING WHERE REQUIRED, ROUTE CONDENSATE PIPING TO FLOOR DRAIN. CONDENSATE PIPE TO BE PITCHED ¼" PER FOOT IN THE DIRECTION OF THE FLOOR DRAIN.

15. INSTALL SMOKE DETECTORS AS REQUIRED BY APPLICABLE CODES, INTERLOCKED TO SHUT DOWN FANS IN ALL AIR HANDLING SYSTEMS SUPPLYING AIR IN EXCESS OF 2,000 CFM. INSTALL IN RETURN AIR STREAM OF DUCTWORK.

FOR SYSTEMS WITH MORE THAN 15,000 CFM INSTALL SMOKE DETECTORS IN SUPPLY AIR AND RETURN AIR STREAM OF DUCTWORK.

WHEN SMOKE DETECTOR IS ACTIVATED A SIGNAL WILL BE SENT TO THE FIRE ALARM AND A VISUAL AND AUDIBLE SIGNAL WILL ACTIVATED.

16. ALL COMBINATION FIRE / SMOKE DAMPERS ARE TO BE INTERLOCKED WITH AND ACTUATED BY THE BUILDING FIRE ALARM SYSTEM. PROVIDE FIRE OR COMBINATION FIRE AND SMOKE DAMPERS IN DUCTWORK OR TRANSFER AIR OPENINGS OF ALL FIRE RATED ASSEMBLIES. CEILING RADIATION DAMPERS ARE REQUIRED AT ALL DUCT / FAN PENETRATIONS OF FIRE RATED CEILINGS. COORDINATE REQUIRED LOCATIONS OF DAMPERS WITH ARCHITECTURAL PLANS INDICATING FIRE AND / OR SMOKE RATED ASSEMBLIES. REFER TO DETAILS.

17. UNLESS MORE STRINGENT LOCAL CODES REQUIRE IT, PROVIDE MINIMUM SINGLE STAGE MERV 8 FILTRATION OR EQUIVALENT FOR RECIRCULATING EQUIPMENT. PROVIDE MINIMUM MERV 12 FILTRATION OR EQUIVALENT FOR AIR HANDLING EQUIPMENT USED TO CONDITION AND SUPPLY AIR.

18. PROVIDE ACCESS DOORS IN CEILINGS AND WALLS FOR ACCESS TO ALL VALVES, VENTS, CONTROLS, DAMPERS, MOTORS, ETC.

19. ALL EXPOSED GRILLES AND DIFFUSERS SHALL HAVE FACTORY FINISH TO MATCH ADJACENT SPACE OR AS INSTRUCTED BY THE ARCHITECT. SUBMIT COLOR SAMPLES FOR SELECTIONS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR PAINTING.

20. ALL EXPOSED DUCTWORK IN FINISHED SPACES SHALL BE PAINTED. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

21. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL TRADES THE LOCATION AND SIZES OF ACCESS DOORS THAT SHALL BE INSTALLED FOR EQUIPMENT ABOVE GYPSUM CEILINGS.

22. THE CONTRACTOR SHALL COORDINATE LOCATION OF INDOOR AND ROOF MOUNTED EQUIPMENT WITH OTHER TRADES TO AVOID CONFLICTS WITH LIGHTS, PLUMBING SYSTEM, CONDUITS, PIPING, DUCTWORK, STRUCTURAL STEEL, ETC.

23. ALL MATERIAL LOCATED WITHIN A RETURN AIR PLENUM SHALL BE NON-COMBUSTIBLE OR LISTED FOR USE WITHIN A PLENUM.

24. THE CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OTHER TRADES AS REQUIRED TO FACILITATE THE INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, GRILLES, ETC TO AVOID CONFLICT.

25. COORDINATE ALL DUCT ROUTING IN ATTIC SPACE OR CONCEALED SPACES WITH STRUCTURAL FRAMING.

CARBON MONOXIDE DETECTOR

1. A CARBON MONOXIDE DETECTOR IS TO BE INSTALLED IN MECHANICAL ROOMS, WATER HEATER ROOMS, POOL EQUIPMENT ROOMS, AND IN AREAS ABOVE AND ADJACENT TO AREAS WHERE A MECHANISM IS PRESENT THAT BURNS FOSSIL FUEL.

2. THE CARBON MONOXIDE DETECTOR IS TO BE CALIBRATED TO ACTIVATE PER CURRENT UL 2034 STANDARDS :
400 ppm / 4 TO 15 MINUTES EXPOSURE
100 PPM / 10 TO 50 MINUTES EXPOSURE
70 PPM / 60 TO 240 MINUTES EXPOSURE

3. THE CARBON MONOXIDE DETECTOR IS TO BE CEILING MOUNTED, 120 VOLT OPERATION WITH BATTERY BACKUP.

4. THE CARBON MONOXIDE DETECTOR SHALL BE WIRED TO THE SMOKE ALARM. UPON DETECTION OF UNSAFE LEVELS OF CARBON MONOXIDE IN THE MONITORED AREA, A DISTINCT AUDIBLE AND VISUAL SIGNAL WILL BE SENT TO THE EMERGENCY CALL SYSTEM ANNUNCIATOR PANEL.

5. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

MECHANICAL COMMISSIONING - TESTING NOTES

EQUIPMENT FOR THE HVAC SYSTEM AND TEMPERATURE CONTROLS SHALL BE COMMISSIONED PER THE ANSI / ASHRAE COMMISSIONING PROCESS FOR BUILDINGS AND SYSTEMS. THE COMMISSIONING PROCESS INTEGRATES THE TRADITIONALLY SEPARATE FUNCTIONS OF SYSTEM DOCUMENTATION, EQUIPMENT STARTUP, PERFORMANCE TESTING AND TRAINING. COMMISSIONING DURING THE CONSTRUCTION PHASE IS INTENDED TO ACHIEVE THE FOLLOWING SPECIFIC OBJECTIVES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS:

1. VERIFY AND DOCUMENT THAT APPLICABLE EQUIPMENT AND SYSTEMS ARE INSTALLED ACCORDING TO THE MANUFACTURE'S RECOMMENDATIONS, CONTRACT REQUIREMENTS, AND INDUSTRY STANDARDS AND THAT THEY RECEIVE ADEQUATE OPERATIONAL CHECKOUT BY INSTALLING CONTRACTORS.

2. VERIFY AND DOCUMENT PROPER PERFORMANCE OF EQUIPMENT AND SYSTEMS. CONTRACTOR SHALL OPERATE ALL PARTS OF ENTIRE HEATING, VENTILATING, AND AIR CONDITIONING, MAKING ADJUSTMENTS AND REPAIRS. BALANCE AIR DELIVERY AT OUTLETS, BALANCING WATER FLOWS AT EQUIPMENT REQUIRING WATER, AND LEAVE SYSTEM TESTED AND READY FOR OPERATION.

START MOTOR DRIVEN EQUIPMENT AND MAKE SURE THAT THERMAL OVERLOAD PROTECTION DOES NOT SHUT DOWN THE MOTOR DURING ACCELERATION PERIOD. START FANS AND CHECK FOR UNUSUAL VIBRATION AS WELL AS FOR DISTORTION AND MISALIGNMENT OF FAN WHEELS AND SHAFTS. CORRECT DEFECTS FOUND. CHECK MOTORS FOR DIRECTIONAL ROTATION. OBTAIN ELECTRICAL TRADES ASSISTANCE WHERE REQUIRED. ALIGN BELTS AND CHECK BELT TENSION. CHECK THAT BELTS OF EACH MULTI-BELT DRIVE ARE MATCHED SET. REPLACE IF REQUIRED. ON MULTIPLE BELT VARIABLE PITCH DRIVES, CHECK THAT ALL BELTS AREA STRICTLY PARALLEL. ADJUST AS REQUIRED. AFFIX LABEL ON EQUIPMENT INFORMATION REQUIRED FOR ORDERING REPLACEMENT BELTS. CHECK THAT TACHOMETER OPENINGS IN BELT GUARD ARE ALIGNED WITH SHAFT ENDS. ADJUST GUARDS AS REQUIRED. CHECK SET POINTS OF OPERATING AND SAFETY CONTROL DEVICES. OPERATE DAMPER MECHANISM. CHECK DAMPERS FOR CORRECT ACTION. CHECK FOR TIGHT CLOSING. ADJUST AS REQUIRED. OPERATE TEMPERATURE CONTROL VALVES AND CHECK FOR CORRECT ACTION.

3. TEST AND BALANCE AIR DISTRIBUTION SYSTEM TO WITHIN 10% OF CFM LISTED ON THE DRAWINGS. BALANCE AIR DELIVERY AT OUTLETS, BALANCING WATER FLOWS AT EQUIPMENT REQUIRING WATER, AND LEAVE SYSTEMS TESTED AND READY FOR OPERATION.

4. CONTRACTOR SHALL TEST ALL CONTROLS AND WIRING TO ENSURE OPERATION OF EQUIPMENT. CHECK IF PRESSURE GAUGES, THERMOMETERS, SENSORS AND FLOW MEASUREMENT DEVICES ARE PLACED IN CORRECT LOCATION. MAKE MODIFICATIONS AS REQUIRED. CHECK ACCESS DOORS AND ACCESS PANELS FOR FREE HINGE AND LATCH OPERATION AS WELL AS EFFECTIVE SEARING OF SEALS. MAKE REPAIR AS REQUIRED. REPOSITION INSTRUMENTS FOUND DIFFICULT TO READ,

5. VERIFY AND DOCUMENT THAT OPERATION AND MAINTENANCE DOCUMENTATION IS COMPLETE. VERIFY AND DOCUMENT THAT THE FACILITY OPERATING PERSONNEL ARE PROPERLY TRAINED. CONTRACTOR SHALL PROVIDE BALANCING REPORTS FOR APPROVAL, PRIOR TO FINAL ACCEPTANCE. THESE REPORTS SHALL INCLUDE AIR FLOW MEASUREMENTS AT OUTLETS, TOTAL AIR QUANTITY HANDLED, INDIVIDUAL WATER FLOW A EQUIPMENT, TOTAL WATER FLOW AT PUMPS, MOTOR AND AMPERAGE, VOLTAGE NAMEPLATE, ACTUAL OPERATING AMPERAGE AND VOLTAGE, AND A STATEMENT THAT THE CONTROL SYSTEM HAS BEEN CHECKED AND VERIFIED FOR OPERATION.

APPROVED MANUFACTURER'S

ACCESS DOORS
RUSKIN
DUCTMATE INDUSTRIES
NAILOR INDUSTRIES, INC.

DUCT INSULATION (EXTERIOR)
ARMACELL
RUBATEX

DUCT INSULATION (INTERIOR)
CERTAIN TEED
JOHNS MANSVILLE
KNAUF
OWENS-CORNING

DUCT SEALANT
MCGILL AIRFLOW
POLYMER ADHESIVES
DUCTMATE INDUSTRIES

FIRE AND SMOKE DAMPERS
RUSKIN
GREENHECK

FIRE STOPPING
HILTI

FLEXIBLE DUCTWORK
DUCTMATE INDUSTRIES
OWENS-CORNING FIBERGLASS
THERMAFLEX TYPE M-KE

GRILLE, REGISTERS, DIFFUSERS
TITUS
PRICE

SHEET METAL DUCTWORK
UNITED SHEET METAL
ALLIED MECHANICAL SERVICES
SEMCO
MCGILL AIRFLEX

VOLUME CONTROL DAMPERS
NAILOR INDUSTRIES, INC.
RUSKIN
GREENHECK
VENTLOCK

HYDRONIC WATER PIPING

1. ALL HYDRONIC WATER PIPING (HOT WATER SUPPLY AND HOT WATER RETURN)

PIPING 2" AND SMALLER SHALL BE :
A. TYPE 'L' COPPER TUBING, ASTM B88, WITH SOLDERED JOINTS AND WROUGHT COPPER FITTINGS ASME B16.22 AND GRADE 95TA SOLDER JOINT.
B. TYPE BCS-150, BLACK CARBON STEEL, ASTM A53, TYPE S (SEAMLESS) OR TYPE E (ELECTRIC-RESISTANCE WELDED), GRADE A, SCHEDULE 40, PLAIN ENDS.

PIPING 2 ½" AND LARGER SHALL BE :
A. TYPE 'L' HARD COPPER TUBE.
B. USE ASTM A536, GRADE 65-45-12 DUCTILE IRON GROOVED MECHANICAL JOINTS FOR WITH ASTM A53, TYPE F, E, OR S, GRADE B FABRICATED STEEL, OR ASTM A106, GRADE B STEEL FITTINGS WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS. USE APPROPRIATE GASKETS FOR 200F

2. PITCH ALL HYDRONIC PIPING DOWN ½" PER 1'-0" IN THE DIRECTION OF FLOW.

3. REAM AND FLUSH WATER LINES BEFORE BEING PUT INTO SERVICE. FIRST FLUSH THE ENTIRE SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE OUTLETS.

REFRIGERANT PIPING

1. PIPING SHALL BE TYPE 'L' OR TYPE 'M' COPPER TUBING

2. HORIZONTAL REFRIGERANT AND DRAIN PIPING SHALL SLOPE DOWN IN THE DIRECTION OF FLOW AT A MINIMUM SLOPE OF 1/8" PER FOOT OF RUN.

REFRIGERANT PIPING INSULATION
1. CLOSED-CELL INSULATION SHALL BE PROVIDED OVER ALL REFRIGERANT PIPING AND OTHER SERVICES AS SPECIFIED OR NOTED. CLOSED-CELL PIPING INSULATION SHALL BE 1/2" THICK 25/50 ARMAFLEX OR RUBATEX. ALL GLUES AND COATINGS SHALL BE PRODUCTS OF THE SAME MANUFACTURER AS THE INSULATION.

2. INSULATION SHALL BE CONTINUOUS OVER ALL VALVE BODIES, FITTINGS, AND WALL AND FLOOR PENETRATIONS.

REFRIGERANT PIPING
1. GENERAL: INSTALL REFRIGERANT LINES PROPERLY PITCHED WITH OIL TRAPS PROPERLY SIZED, LOCATED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ANY OIL IN ANY PART OF THE SYSTEM SHALL BE ABLE TO FIND ITS WAY BACK TO THE COMPRESSOR WITH THE SYSTEM OPERATING ON MINIMUM CAPACITY. INSTALL PIPING IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICE AS RECOGNIZED BY THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS, AND AS FOLLOWS.

3. ACCESSORIES: PROVIDE NECESSARY ACCESSORIES FOR A COMPLETE AND WORKABLE SYSTEM WHETHER SHOWN ON THE DRAWINGS OR NOT WHICH COULD INCLUDE SUCH ITEMS AS STRAINERS, FILTER DRIER, SIGHT GLASS, RELIEF VALVES, CHARGING VALVES, STOP VALVES, CHECK VALVES, EXPANSION VALVES AND SOLENOID VALVES.

4. UTILIZE THE SERVICES OF A QUALIFIED REFRIGERATION MECHANIC FOR THE INSTALLATION AND TESTING OF REFRIGERANT PIPING AND REFRIGERATION EQUIPMENT.

5. ALL REFRIGERATION PIPING, INSTALLATION, AND TESTING SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ANS SPECIFICATION B9.1.

CONDENSATE PIPING

1. PIPING SHALL BE SCHEDULE 80 POLYVINYL CHLORIDE PIPE (PVC).

GAS PIPING

1. PROVIDE INDIVIDUAL GAS SHUT OFF PLUG VALVE AND DIRT LEG AT EACH GAS FIRED PIECE OF EQUIPMENT.

2. PROVIDE PRESSURE REGULATOR AND VENTING AS REQUIRED BY CODE.

3. EXTERIOR GAS PIPING PLACED ON THE ROOF SHALL BE PROVIDED WITH SUPPORTING MEANS FOR EXTREME MOVEMENT AND TO PROTECT THE ROOF AS DETAILED ON PLANS. ALSO PROVIDE A FULL WIDTH NON-BINDING STRAP IRON RETAINER ACROSS THE SUPPORT CLEAT.

4. ALL GAS PIPING EXPOSED TO THE WEATHER SHALL BE PAINTED WITH TWO COATS OF YELLOW RUST PREVENTATIVE PAINT.

5. CONTRACTOR TO VERIFY SERVICE SIZE, METER SIZE, AND PRESSURE WITH UTILITY COMPANY.

6. INSTALL GAS PIPING ONLY IN ACCESSIBLE LOCATIONS OR AS REQUIRED BY GOVERNING CODE.

6. GAS PIPING AND TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY, APPLICABLE CODE AUTHORITIES AND CURRENT STANDARDS OF NFPA.

7. WELDING MATERIALS AND LABOR TO CONFORM TO ASME CODE AND APPLICABLE STATE LABOR REGULATIONS.

8. USE WELDERS FULLY QUALIFIED AND LICENSED BY STATE AUTHORITIES.

9. GAS PIPING: INSTALLATION CODE FOR NATURAL GAS BURNING APPLIANCES AND EQUIPMENT.

10. GAS PIPING INSTALLATIONS SHALL CONFORM TO THE MINIMUM REQUIREMENTS LOCAL AUTHORITY HAVING JURISDICTION.

PRODUCTS
1. ALL ABOVEGROUND GAS PIPING 4" AND SMALLER SHALL BE ASTM A53, SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON FITTINGS. THREADED PIPE AND FITTINGS FOR PIPE 2" AND SMALLER, AND WELDED PIPE FOR 2½" PIPE AND LARGER.

2. GAS COCKS 2" AND SMALLER SHALL BE ALL IRON WITH BRASS SQUARE HEAD PLUG. EQUAL TO CRANE NO. 324.

3. GAS COCKS LARGER THAN 2" SHALL BE LUBRICATED PLUG COCKS WITH WELDING ENDS, WRENCH OPERATED. EQUAL TO NORDSTORM NO. 2025½.

UNIONS AND COUPLINGS
1. SIZE 2½" AND UNDER: 150 PSI BLACK MALLEABLE IRON, GROUND JOINT BRASS TO IRON SEAT UNIONS FOR THREADED FERROUS PIPING AIR TESTED FOR GAS SERVICE. EQUAL TO GRINNELL 463 OR EQUAL.

CONNECTIONS
1. SCREW JOINT STEEL PIPING UP TO AND INCLUDING 1½". WELD PIPING 2½"AND LARGER, INCLUDING BRANCH CONNECTIONS. SCREW OR WELD 2 INCH PIPING. ALL INTERMEDIATE PRESSURE PIPE 2" AND LARGER SHALL HAVE WELDED JOINTS.

2. ALL EQUIPMENT CONNECTIONS SHALL BE PRECEDED BY A FULL LINE SIZE MANUAL SHUT-OFF COCK, PRESSURE REGULATOR, 6" DIRT POCKET AND UNION AT THE EQUIPMENT. UNION SHALL BE INSTALLED BETWEEN THE SHUTOFF COCK AND THE EQUIPMENT. PRESSURE REGULATORS SHALL BE RATED TO REGULATE FROM 2 PSI TO OUNCES PRESSURE AND WHEN LOCATED INSIDE THE BUILDING SHALL BE VENTED TO THE OUTSIDE ATMOSPHERE AS REQUIRED BY THE LOCAL AUTHORITY.

3. PROVIDE A 6" DIRT POCKET AT THE LOW POINT OF THE GAS LINE AND WHERE SHOWN ON THE DRAWINGS COMPLETE WITH A SCREWED CAP END.

4. WELDED JOINTS SHALL BE FUSION-WELDED UNLESS OTHERWISE REQUIRED. CHANGES IN DIRECTION OF PIPING SHALL BE MADE WITH WELDING FITTINGS ONLY. MITERING OR NOTCHING PIPE TO FORM ELBOWS AND TEES OR OTHER SIMILAR CONSTRUCTION WILL NOT BE PERMITTED. BRANCH CONNECTIONS SHALL BE MADE WITH WELDING TEES OR FORGED WELDING BRANCH OUTLETS.

BEVELING
FIELD AND SHOP BEVELS SHALL BE IN ACCORDANCE WITH THE RECOGNIZED STANDARDS AND SHALL BE DONE BY MECHANICAL MEANS OR FLAME CUTTING. WHERE BEVELING IS DONE BY FLAME CUTTING, SURFACES SHALL BE CLEANED OF SCALE AND OXIDATION PRIOR TO WELDING.

ALIGNMENT
BEFORE WELDING, THE COMPONENT PARTS TO BE WELDED SHALL BE ALIGNED SO THAT NO STRAIN IS PLACED ON THE WELD WHEN FINALLY POSITIONED. WROUGHT SHALL BE SO ALIGNED THAT NO PART OF THE PIPE WALL IS OFFSET BY MORE THAN 20 PERCENT OF THE WALL THICKNESS. FLANGES AND BRANCHES SHALL BE SET TRUE. THIS ALIGNMENT SHALL BE PRESERVED DURING THE WELDING OPERATION.

ERECTION
WHERE THE TEMPERATURE OF THE COMPONENTS BEING WELDED REACHES 32 DEGREES F OR LOWER, THE MATERIAL SHALL BE HEATED TO APPROXIMATELY 100 DEGREES F FOR A DISTANCE OF 3 FT ON EACH SIDE OF THE WELD BEFORE WELDING, AND THE WELD SIDE OF THE WELD BEFORE WELDING, AND THE WELD SHALL BE FINISHED BEFORE THE MATERIAL COOLS TO 32 DEGREES F.

ROUTE AND GRADES
1. ROUTE PIPING IN ORDERLY MANNER AND INSTALL DRIP LEGS FOR CONDENSATION COLLECTION POINTS. RUN PIPING ON DEDICATED ROOF AREA AND PARALLEL TO WALLS.

2. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.

3. BRANCHES AND TAKE-OFFS SHALL BE OFF THE TOP OF MAINS. ALL HORIZONTAL LINES SHALL PITCH TO RISERS OR APPLIANCES.

TESTING:

A. PROVIDE TEST PUMPS, GAUGES, METERS, AND OTHER INSTRUMENTS, MATERIALS, AND LABOR IN CONNECTION WITH TESTS.

B. DO NOT PAINT, COVER OR CONCEAL PIPING, SWING JOINTS, AND THE LIKE, BEFORE TESTING AND OBTAINING APPROVAL.

C. TEST PIPING WHICH WILL BE CONCEALED, IN SECTIONS AS APPROVED, IN A MANNER WHICH WILL NOT LEAVE ANY PIPE OR JOINT UNTESTED.

D. PRIOR TO TESTING PIPING SYSTEMS, REMOVE OR OTHERWISE PROTECT FROM DAMAGE, CONTROL DEVICES, AIR VENTS, AND OTHER PARTS WHICH ARE NOT DESIGNED TO STAND PRESSURES USED IN TESTING PIPING.

E. TEST WELDED PIPING FOR LEAKS, UNDER 100 PSI AIR PRESSURE WITH SOAP SUDS; THIS TEST SHALL PRECEDE HYDROSTATIC TEST.

F. MAKE NECESSARY REPAIRS AND REPEAT TESTS UNTIL THE ENTIRE SYSTEM IS APPROVED AND SATISFACTORY.

G. PERFORM SPECIFIED SERVICES WITH CONTRACTOR'S QUALIFIED PERSONNEL, OR EMPLOY AND PAY FOR A QUALIFIED ORGANIZATION TO PERFORM SPECIFIED SERVICES.

GAS PIPING

1. THE TEST PRESSURE FOR THIS SYSTEM SHALL BE 1.5 TIMES WORKING PRESSURE BUT NO LESS THAN 60 POUNDS PER SQUARE INCH. THIS TESTING WILL BE CONDUCTED BY USING AIR, CO2, OR NITROGEN PRESSURE TEST. THIS TEST WILL BE HELD FOR NO LESS THAN 1 HOUR WITH NO DROP IN PRESSURE. ALL JOINTS WILL BE SUBJECTED TO A VISUAL INSPECTION AND SOAP TEST. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPAIR ALL LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.

TRIUMPH
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STATE OF MICHIGAN
REGISTERED PROFESSIONAL ENGINEER
No. 6201022031
8/7/23

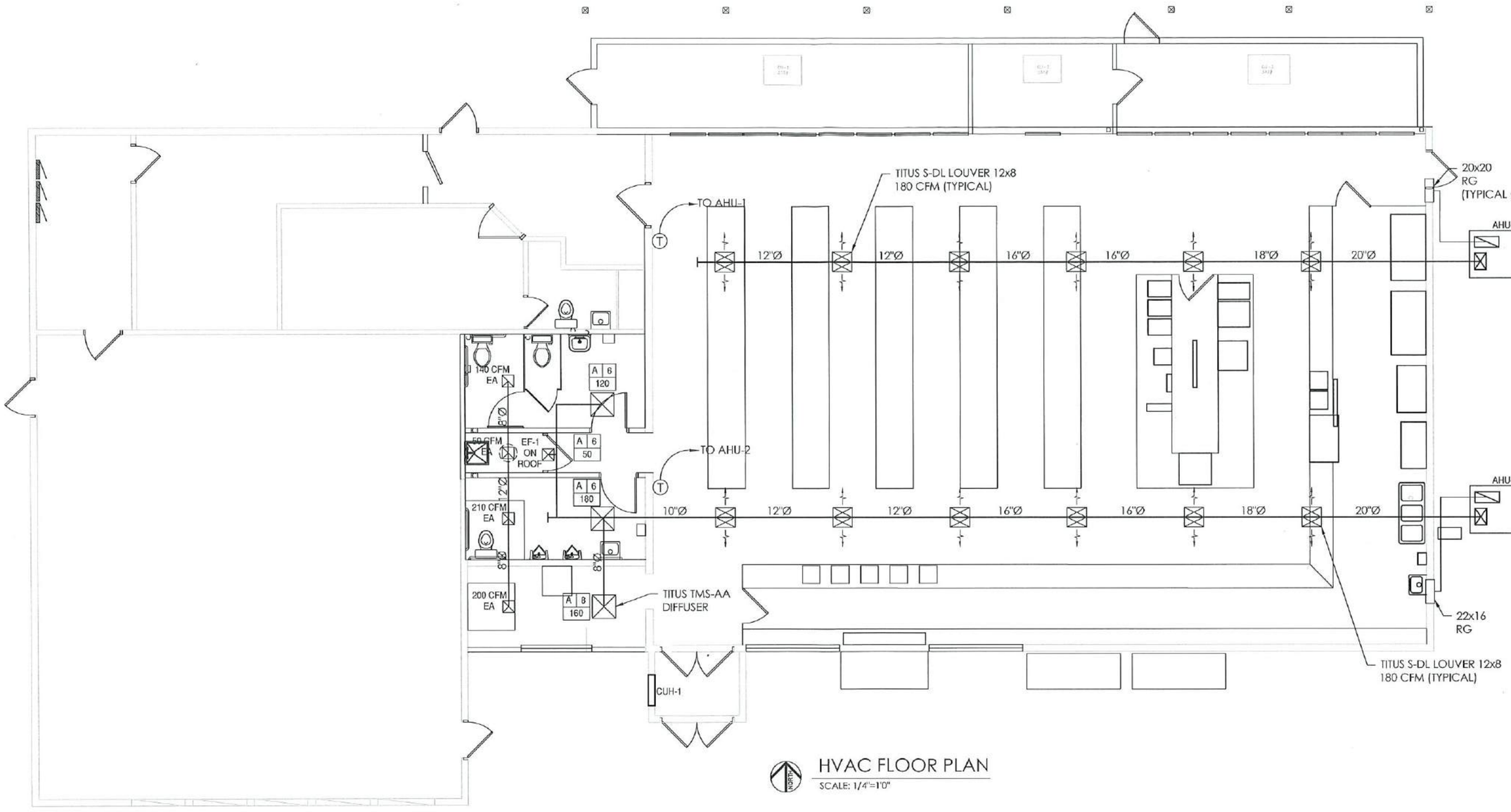
TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/26/2023

DRAWN : MSH
CHECKED : PGMc
SCALE : PGMc
JOB NO : TE-22-155

SHEET TITLE :
HVAC NOTES

SHEET
M-002



HVAC FLOOR PLAN

SCALE: 1/4"=1'0"

TRIUMPH

Triumph Engineering & Design, Inc.

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STATE OF MI
No. 6201022031
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/20/2023

DRAWN : RSH
CHECKED : PGMc
SCALE : PGMc
JOB NO : TE-22-168

SHEET TITLE :
HVAC FLOOR PLAN

SHEET
M-100

EXHAUST FAN SCHEDULE

TE-22-168 - TYRONE PARTY STORE

MARK	AREA SERVED	MANF	MODEL	CFM	STATIC PRESS	DRIVE	TYPE	ELECTRICAL					PHYSICAL PROPERTIES		NOTES
								VOLTAGE	MOTOR (HP)	FLA (AMPS)	MCA	MOP	WEIGHT (POUNDS)	SIZE	
EF-1	RESTROOMS	GREENHECK	CUE-099-VG	600	0.5	DIRECT	ROOF	115/60/1	1/4	2.85	4	15	39	19" x 19"	1

Keyed Notes :
1. Provide roof curb with backdraft damper and hinged base.

VENTILATION SCHEDULE - TYRONE PARTY STORE

PROJECT NO. TE-22-168

Per Michigan Mechanical Code Section 403

Note : Formula used for Outdoor Air CFM : (SF x (CFM/SF factor) + (People)(CFM / Person factor)) ÷ 0.80

ROOM NO.	ROOM NAME	ROOM PRESSURE	SQUARE FEET	OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 SF	TOTAL OCCUPANT LOAD	OUTDOOR AIRFLOW		EXHAUST AIRFLOW RATE CFM / PLUMBING FIXTURE	CALCULATED CFM		ACTUAL CFM PROVIDED			
							OUTDOOR AIRFLOW RATE CFM / PERSON	OUTDOOR AIRFLOW RATE CFM / SF		CALCULATED OUTDOOR AIR (CFM)	MINIMUM EXHAUST AIR (CFM)	OUTDOOR AIR (CFM)	SUPPLY AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR (CFM)
101	ENTRY	NEUTRAL	104	ENTRY	10	0	5.00	0.06	0	8	0	0	160	0	200
102	MEN'S RESTROOM	NEGATIVE	107	TOILET	0	0	0.00	0.00	210	0	210	36	180	0	210
103	UTILITY CLOSET	NEGATIVE	22	STORAGE	0	0	0.00	0.12	70	3	70	10	50	0	70
104	WOMEN'S RESTROOM	NEGATIVE	123	TOILET	0	0	0.00	0.00	140	0	140	24	120	0	140
105	SALES	NEUTRAL	2866	SALES	15	22	7.50	0.12	0	636	0	864	4320	4320	0
									TOTALS	647	420	934	4,830	4,320	620

AIR HANDLING UNIT SCHEDULE

TE-22-168 TYRONE PARTY STORE

MARK	MANF	MODEL	CFM	TONS	COOLING NET MBH	HEATING CAPACITY		ELECTRICAL					PHYSICAL PROPERTIES	
						INPUT BTU/H	OUTPUT BTU/H	VOLTAGE	MCA	FUSE SIZE	DISC SIZE		WEIGHT (POUNDS)	SIZE
											FLA	LRA		
AHU-1	CARRIER	48TCEA06HGA30A0A0	1500 - 2500	5	59.0	115	90	208-230 / 1 / 60	42	60	40	175	570	44" x 74 3/8" x 33 3/8" H
AHU-2	CARRIER	48TCEA06HGA30A0A0	1500 - 2500	5	59.0	115	90	208-230 / 1 / 60	42	60	40	175	570	44" x 74 3/8" x 33 3/8" H

TRIUMPH

Triumph Engineering & Design, Inc.

10775 S. SAGINAW ST.
GRAND BLANC, MI 48439
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www.triumpheng.com

STATE OF MICHIGAN
P.E.
No. 6201022031
LICENSED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/26/2023

DRAWN : RHH
CHECKED : PDiMo
SCALE : PDiMo
JOB NO : TE-22-168

SHEET TITLE :
HVAC SCHEDULES

SHEET
M-101

DUCTWORK - DELIVERY, STORAGE AND HANDLING

1. PROTECT ALL DUCTWORK, FLANGES, FITTINGS AND SPECIALTIES FROM WEATHER, MOISTURE, DIRT AND DAMAGE RESULTING FROM OTHER CAUSES SUCH AS TOOL IMPACT, ACCIDENTS, CARELESSNESS OR ABUSE. ELEVATE ABOVE GRADE. DO NOT EXCEED STRUCTURAL CAPACITY OF FLOOR, IF STORED INSIDE.

HVAC CONSTRUCTION NOTES

1. FABRICATION AND INSTALLATION AND OF ALL DUCTWORK SHALL CONFORM TO SMACNA DUCT STANDARDS, ASHRAE HANDBOOKS AND LOCAL CODES.

GUIDELINES FOR DUCTWORK SIZING AT 0.10" W.C. PER 100 FT:
- MAIN SUPPLY DUCTS : 2,000 FPM
- BRANCH DUCTS : 1,500 FPM
- RETURN AND EXHAUST DUCTS : 1,500 FPM
- ROOM TERMINAL AIR DEVICES : 800 FPM

ROUND DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL STEEL, SIZED AS SHOWN :

SIZE	GAUGE
14" AND SMALLER	24
16" TO 36"	22
38" TO 50"	20
52" TO 60"	18

RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL STEEL, SIZED AS SHOWN :

DIMENSION OF LONGEST SIDE	GAUGE
UP TO 18"	24
20" TO 48"	22
50" TO 72"	20
74" AND OVER	18

2. COORDINATE LOCATIONS OF DUCTS WITH EXISTING STRUCTURE, PLUMBING, LIGHTS, SPRINKLERS, CONDUIT EQUIPMENT AND ALL FIELD CONDITIONS AND OTHER TRADES.

3. COORDINATE LOCATION OF REGISTERS, GRILLES, AND DIFFUSERS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN AND ELECTRICAL DRAWINGS. CENTER GRILLES AND DIFFUSERS IN CEILING TILES.

4. FOR DUCTWORK ELBOWS USE LONG RADIUS ELBOWS WITH A CENTERLINE RADIUS EQUAL TO (2) TIMES THE DUCT DIAMETER ON ROUND DUCT, AND ELBOW WIDTH ON RECTANGULAR DUCT. AT SQUARE ELBOWS GREATER THAN 45 DEGREES USE TURNING VANES.

5. FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT POINTS WHERE DUCTS CONNECT TO AIR HANDLING EQUIPMENT OR OTHER EQUIPMENT TO MINIMIZE TRANSMISSIONS OF MECHANICAL VIBRATION IN DUCTWORK. ALL FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS.

6. PROVIDE FIRE STOP IN WALL, FLOOR, AND CEILING PENETRATIONS WHERE REQUIRED TO MAINTAIN FIRE SEPARATION.

7. SEAL SUPPLY AND RETURN JOINTS AND SEAMS WITH HARD-CAST DUCT SEALANT.

8. SUPPLY AND RETURN DUCT TO BE INSULATED UNLESS INDICATED OTHERWISE WITH 1-1/2" THICK, BLANKET-TYPE, FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, 2" STAPLING AND TAPING FLANGE ALONG ONE EDGE. INSULATION : ASTM C553, DENSITY OF 0.75, CONDUCTIVITY OF 0.23 @75F. VAPOR BARRIER : LAMINATED WHITE KRAFT PAPER, ALUMINUM FOIL, GLASS FIBER REINFORCEMENT, PERMEANCE OF 0.02, AND PUNCTURE RESISTANCE OF 50 UNITS. COMPOSITE FLAMES SPREAD / SMOKE DENSITY OF 25/50. APPROVED MANUFACTURERS : CERTAINTEED, JOHNS MANSVILLE, KNAUF, OWENS/CORNING.

9. FOR EXTERIOR ROOF MOUNTED DUCTWORK PROVIDE 1" MINIMUM RIGID PHENOLIC INSULATION AND UV RESISTANT ALUMINUM JACKET WITH WATERPROOF SEAMS.

10. ALL SUPPLY AND OUTSIDE AIR DUCTS FROM MAKE UP AIR UNITS SHALL BE LINED WITH ACOUSTICAL DUCT INSULATION FROM UNIT CONNECTION TO TEN FEET INTO THE SYSTEM. DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS, ADJUST DUCT SIZES FOR LINING.

11. FLEXIBLE DUCT IS NOT ALLOWED ON RETURN AND EXHAUST SYSTEMS.

12. PROVIDE VOLUME DAMPERS IN ALL TAKEOFFS TO ALL DIFFUSERS.

13. CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED WITH SUFFICIENT CLEARANCE FOR FUTURE MAINTENANCE. FOLLOW THE MANUFACTURE'S RECOMMENDATIONS FOR INSTALLATION.

14. PROVIDE CONDENSATE PIPING WHERE REQUIRED, ROUTE CONDENSATE PIPING TO FLOOR DRAIN. CONDENSATE PIPE TO BE PITCHED ¼" PER FOOT IN THE DIRECTION OF THE FLOOR DRAIN.

15. INSTALL SMOKE DETECTORS AS REQUIRED BY APPLICABLE CODES, INTERLOCKED TO SHUT DOWN FANS IN ALL AIR HANDLING SYSTEMS SUPPLYING AIR IN EXCESS OF 2,000 CFM. INSTALL IN RETURN AIR STREAM OF DUCTWORK.

FOR SYSTEMS WITH MORE THAN 15,000 CFM INSTALL SMOKE DETECTORS IN SUPPLY AIR AND RETURN AIR STREAM OF DUCTWORK.

WHEN SMOKE DETECTOR IS ACTIVATED A SIGNAL WILL BE SENT TO THE FIRE ALARM AND A VISUAL AND AUDIBLE SIGNAL WILL ACTIVATED.

16. ALL COMBINATION FIRE / SMOKE DAMPERS ARE TO BE INTERLOCKED WITH AND ACTUATED BY THE BUILDING FIRE ALARM SYSTEM. PROVIDE FIRE OR COMBINATION FIRE AND SMOKE DAMPERS IN DUCTWORK OR TRANSFER AIR OPENINGS OF ALL FIRE RATED ASSEMBLIES. CEILING RADIATION DAMPERS ARE REQUIRED AT ALL DUCT / FAN PENETRATIONS OF FIRE RATED CEILINGS. COORDINATE REQUIRED LOCATIONS OF DAMPERS WITH ARCHITECTURAL PLANS INDICATING FIRE AND / OR SMOKE RATED ASSEMBLIES. REFER TO DETAILS.

17. UNLESS MORE STRINGENT LOCAL CODES REQUIRE IT, PROVIDE MINIMUM SINGLE STAGE MERV 8 FILTRATION OR EQUIVALENT FOR RECIRCULATING EQUIPMENT. PROVIDE MINIMUM MERV 12 FILTRATION OR EQUIVALENT FOR AIR HANDLING EQUIPMENT USED TO CONDITION AND SUPPLY AIR.

18. PROVIDE ACCESS DOORS IN CEILINGS AND WALLS FOR ACCESS TO ALL VALVES, VENTS, CONTROLS, DAMPERS, MOTORS, ETC.

19. ALL EXPOSED GRILLES AND DIFFUSERS SHALL HAVE FACTORY FINISH TO MATCH ADJACENT SPACE OR AS INSTRUCTED BY THE ARCHITECT. SUBMIT COLOR SAMPLES FOR SELECTIONS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR PAINTING.

20. ALL EXPOSED DUCTWORK IN FINISHED SPACES SHALL BE PAINTED. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

21. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL TRADES THE LOCATION AND SIZES OF ACCESS DOORS THAT SHALL BE INSTALLED FOR EQUIPMENT ABOVE GYPSUM CEILINGS.

22. THE CONTRACTOR SHALL COORDINATE LOCATION OF INDOOR AND ROOF MOUNTED EQUIPMENT WITH OTHER TRADES TO AVOID CONFLICTS WITH LIGHTS, PLUMBING SYSTEM, CONDUITS, PIPING, DUCTWORK, STRUCTURAL STEEL, ETC.

23. ALL MATERIAL LOCATED WITHIN A RETURN AIR PLENUM SHALL BE NON-COMBUSTIBLE OR LISTED FOR USE WITHIN A PLENUM.

24. THE CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OTHER TRADES AS REQUIRED TO FACILITATE THE INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, GRILLES, ETC TO AVOID CONFLICT.

25. COORDINATE ALL DUCT ROUTING IN ATTIC SPACE OR CONCEALED SPACES WITH STRUCTURAL FRAMING.

CARBON MONOXIDE DETECTOR

1. A CARBON MONOXIDE DETECTOR IS TO BE INSTALLED IN MECHANICAL ROOMS, WATER HEATER ROOMS, POOL EQUIPMENT ROOMS, AND IN AREAS ABOVE AND ADJACENT TO AREAS WHERE A MECHANISM IS PRESENT THAT BURNS FOSSIL FUEL.

2. THE CARBON MONOXIDE DETECTOR IS TO BE CALIBRATED TO ACTIVATE PER CURRENT UL 2034 STANDARDS :
400 ppm / 4 TO 15 MINUTES EXPOSURE
100 PPM / 10 TO 50 MINUTES EXPOSURE
70 PPM / 60 TO 240 MINUTES EXPOSURE

3. THE CARBON MONOXIDE DETECTOR IS TO BE CEILING MOUNTED, 120 VOLT OPERATION WITH BATTERY BACKUP.

4. THE CARBON MONOXIDE DETECTOR SHALL BE WIRED TO THE SMOKE ALARM. UPON DETECTION OF UNSAFE LEVELS OF CARBON MONOXIDE IN THE MONITORED AREA, A DISTINCT AUDIBLE AND VISUAL SIGNAL WILL BE SENT TO THE EMERGENCY CALL SYSTEM ANNUNCIATOR PANEL.

5. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

MECHANICAL COMMISSIONING - TESTING NOTES

EQUIPMENT FOR THE HVAC SYSTEM AND TEMPERATURE CONTROLS SHALL BE COMMISSIONED PER THE ANSI / ASHRAE COMMISSIONING PROCESS FOR BUILDINGS AND SYSTEMS. THE COMMISSIONING PROCESS INTEGRATES THE TRADITIONALLY SEPARATE FUNCTIONS OF SYSTEM DOCUMENTATION, EQUIPMENT STARTUP, PERFORMANCE TESTING AND TRAINING. COMMISSIONING DURING THE CONSTRUCTION PHASE IS INTENDED TO ACHIEVE THE FOLLOWING SPECIFIC OBJECTIVES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS:

1. VERIFY AND DOCUMENT THAT APPLICABLE EQUIPMENT AND SYSTEMS ARE INSTALLED ACCORDING TO THE MANUFACTURE'S RECOMMENDATIONS, CONTRACT REQUIREMENTS, AND INDUSTRY STANDARDS AND THAT THEY RECEIVE ADEQUATE OPERATIONAL CHECKOUT BY INSTALLING CONTRACTORS.

2. VERIFY AND DOCUMENT PROPER PERFORMANCE OF EQUIPMENT AND SYSTEMS. CONTRACTOR SHALL OPERATE ALL PARTS OF ENTIRE HEATING, VENTILATING, AND AIR CONDITIONING, MAKING ADJUSTMENTS AND REPAIRS, BALANCE AIR DELIVERY AT OUTLETS, BALANCING WATER FLOWS AT EQUIPMENT REQUIRING WATER, AND LEAVE SYSTEM TESTED AND READY FOR OPERATION.

START MOTOR DRIVEN EQUIPMENT AND MAKE SURE THAT THERMAL OVERLOAD PROTECTION DOES NOT SHUT DOWN THE MOTOR DURING ACCELERATION PERIOD. START FANS AND CHECK FOR UNUSUAL VIBRATION AS WELL AS FOR DISTORTION AND MISALIGNMENT OF FAN WHEELS AND SHAFTS. CORRECT DEFECTS FOUND. CHECK MOTORS FOR DIRECTIONAL ROTATION. OBTAIN ELECTRICAL TRADES ASSISTANCE WHERE REQUIRED. ALIGN BELTS AND CHECK BELT TENSION. CHECK THAT BELTS OF EACH MULTI-BELT DRIVE ARE MATCHED SET. REPLACE IF REQUIRED. ON MULTIPLE BELT VARIABLE PITCH DRIVES, CHECK THAT ALL BELTS AREA STRICTLY PARALLEL. ADJUST AS REQUIRED. AFFIX LABEL ON EQUIPMENT INFORMATION REQUIRED FOR ORDERING REPLACEMENT BELTS. CHECK THAT TACHOMETER OPENINGS IN BELT GUARD ARE ALIGNED WITH SHAFT ENDS. ADJUST GUARDS AS REQUIRED. CHECK SET POINTS OF OPERATING AND SAFETY CONTROL DEVICES. OPERATE DAMPER MECHANISM, CHECK DAMPERS FOR CORRECT ACTION. CHECK FOR TIGHT CLOSING. ADJUST AS REQUIRED. OPERATE TEMPERATURE CONTROL VALVES AND CHECK FOR CORRECT ACTION.

3. TEST AND BALANCE AIR DISTRIBUTION SYSTEM TO WITHIN 10% OF CFM LISTED ON THE DRAWINGS. BALANCE AIR DELIVERY AT OUTLETS, BALANCING WATER FLOWS AT EQUIPMENT REQUIRING WATER, AND LEAVE SYSTEMS TESTED AND READY FOR OPERATION.

4. CONTRACTOR SHALL TEST ALL CONTROLS AND WIRING TO ENSURE OPERATION OF EQUIPMENT. CHECK IF PRESSURE GAUGES, THERMOMETERS, SENSORS AND FLOW MEASUREMENT DEVICES ARE PLACED IN CORRECT LOCATION. MAKE MODIFICATIONS AS REQUIRED. CHECK ACCESS DOORS AND ACCESS PANELS FOR FREE HINGE AND LATCH OPERATION AS WELL AS EFFECTIVE SEATING OF SEALS. MAKE REPAIR AS REQUIRED. REPOSITION INSTRUMENTS FOUND DIFFICULT TO READ,

5. VERIFY AND DOCUMENT THAT OPERATION AND MAINTENANCE DOCUMENTATION IS COMPLETE. VERIFY AND DOCUMENT THAT THE FACILITY OPERATING PERSONNEL ARE PROPERLY TRAINED. CONTRACTOR SHALL PROVIDE BALANCING REPORTS FOR APPROVAL, PRIOR TO FINAL ACCEPTANCE. THESE REPORTS SHALL INCLUDE AIR FLOW MEASUREMENTS AT OUTLETS, TOTAL AIR QUANTITY HANDLED, INDIVIDUAL WATER FLOW A EQUIPMENT, TOTAL WATER FLOW AT PUMPS, MOTOR AND AMPERAGE, VOLTAGE NAMEPLATE, ACTUAL OPERATING AMPERAGE AND VOLTAGE, AND A STATEMENT THAT THE CONTROL SYSTEM HAS BEEN CHECKED AND VERIFIED FOR OPERATION.

APPROVED MANUFACTURER'S

ACCESS DOORS
RUSKIN
DUCTMATE INDUSTRIES
NAILOR INDUSTRIES, INC.

DUCT INSULATION (EXTERIOR)
ARMACELL
RUBATEX

DUCT INSULATION (INTERIOR)
CERTAIN TEED
JOHNS MANSVILLE
KNAUF
OWENS-CORNING

DUCT SEALANT
MCGILL AIRFLOW
POLYMER ADHESIVES
DUCTMATE INDUSTRIES

FIRE AND SMOKE DAMPERS
RUSKIN
GREENHECK

FIRE STOPPING
HILTI

FLEXIBLE DUCTWORK
DUCTMATE INDUSTRIES
OWENS-CORNING FIBERGLASS
THERMAFLEX TYPE M-KE

GRILLE, REGISTERS, DIFFUSERS
TITUS
PRICE

SHEET METAL DUCTWORK
UNITED SHEET METAL
ALLIED MECHANICAL SERVICES
SEMCO
MCGILL AIRFLEX

VOLUME CONTROL DAMPERS
NAILOR INDUSTRIES, INC.
RUSKIN
GREENHECK
VENTLOCK

HYDRONIC WATER PIPING

1. ALL HYDRONIC WATER PIPING (HOT WATER SUPPLY AND HOT WATER RETURN)

PIPING 2" AND SMALLER SHALL BE :
- A. TYPE 'L' COPPER TUBING, ASTM B88, WITH SOLDERED JOINTS AND WROUGHT COPPER FITTINGS ASME B16.22 AND GRADE 95TA SOLDER JOINT.
- B. TYPE BCS-150, BLACK CARBON STEEL, ASTM A53, TYPE S (SEAMLESS) OR TYPE E (ELECTRIC-RESISTANCE WELDED), GRADE A, SCHEDULE 40, PLAIN ENDS.

PIPING 2 ½" AND LARGER SHALL BE :
- A. TYPE 'L' HARD COPPER TUBE.
- B. USE ASTM A536, GRADE 65-45-12 DUCTILE IRON GROOVED MECHANICAL JOINTS FOR WITH ASTM A53, TYPE F, E, OR S, GRADE B FABRICATED STEEL, OR ASTM A106, GRADE B STEEL FITTINGS WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS. USE APPROPRIATE GASKETS FOR 200'F

2. PITCH ALL HYDRONIC PIPING DOWN ⅛" PER 1'-0" IN THE DIRECTION OF FLOW.

3. REAM AND FLUSH WATER LINES BEFORE BEING PUT INTO SERVICE. FIRST FLUSH THE ENTIRE SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE OUTLETS.

REFRIGERANT PIPING

1. PIPING SHALL BE TYPE 'L' OR TYPE 'M' COPPER TUBING

2. HORIZONTAL REFRIGERANT AND DRAIN PIPING SHALL SLOPE DOWN IN THE DIRECTION OF FLOW AT A MINIMUM SLOPE OF 1/8" PER FOOT OF RUN.

REFRIGERANT PIPING INSULATION
1. CLOSED-CELL INSULATION SHALL BE PROVIDED OVER ALL REFRIGERANT PIPING AND OTHER SERVICES AS SPECIFIED OR NOTED. CLOSED-CELL PIPING INSULATION SHALL BE 1/2" THICK 25/50 ARMAFLEX OR RUBATEX. ALL GLUES AND COATINGS SHALL BE PRODUCTS OF THE SAME MANUFACTURER AS THE INSULATION.

2. INSULATION SHALL BE CONTINUOUS OVER ALL VALVE BODIES, FITTINGS, AND WALL AND FLOOR PENETRATIONS.

REFRIGERANT PIPING
1. GENERAL: INSTALL REFRIGERANT LINES PROPERLY PITCHED WITH OIL TRAPS PROPERLY SIZED, LOCATED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS. ANY OIL IN ANY PART OF THE SYSTEM SHALL BE ABLE TO FIND ITS WAY BACK TO THE COMPRESSOR WITH THE SYSTEM OPERATING ON MINIMUM CAPACITY. INSTALL PIPING IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICE AS RECOGNIZED BY THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS, AND AS FOLLOWS.

3. ACCESSORIES: PROVIDE NECESSARY ACCESSORIES FOR A COMPLETE AND WORKABLE SYSTEM WHETHER SHOWN ON THE DRAWINGS OR NOT WHICH COULD INCLUDE SUCH ITEMS AS STRAINERS, FILTER DRIER, SIGHT GLASS, RELIEF VALVES, CHARGING VALVES, STOP VALVES, CHECK VALVES, EXPANSION VALVES AND SOLENOID VALVES.

4. UTILIZE THE SERVICES OF A QUALIFIED REFRIGERATION MECHANIC FOR THE INSTALLATION AND TESTING OF REFRIGERANT PIPING AND REFRIGERATION EQUIPMENT.

5. ALL REFRIGERATION PIPING, INSTALLATION, AND TESTING SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ANS SPECIFICATION B9.1.

CONDENSATE PIPING
1. PIPING SHALL BE SCHEDULE 80 POLYVINYL CHLORIDE PIPE (PVC).

GAS PIPING

1. PROVIDE INDIVIDUAL GAS SHUT OFF PLUG VALVE AND DIRT LEG AT EACH GAS FIRED PIECE OF EQUIPMENT.

2. PROVIDE PRESSURE REGULATOR AND VENTING AS REQUIRED BY CODE.

3. EXTERIOR GAS PIPING PLACED ON THE ROOF SHALL BE PROVIDED WITH SUPPORTING WEANS FOR EXTREME MOVEMENT AND TO PROTECT THE ROOF AS DETAILED ON PLANS. ALSO PROVIDE A FULL WIDTH NON-BINDING STRAP IRON RETAINER ACROSS THE SUPPORT CLEAT.

4. ALL GAS PIPING EXPOSED TO THE WEATHER SHALL BE PAINTED WITH TWO COATS OF YELLOW RUST PREVENTATIVE PAINT.

5. CONTRACTOR TO VERIFY SERVICE SIZE, METER SIZE, AND PRESSURE WITH UTILITY COMPANY.

6. INSTALL GAS PIPING ONLY IN ACCESSIBLE LOCATIONS OR AS REQUIRED BY GOVERNING CODE.

6. GAS PIPING AND TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY, APPLICABLE CODE AUTHORITIES AND CURRENT STANDARDS OF NFPA.

7. WELDING MATERIALS AND LABOR TO CONFORM TO ASME CODE AND APPLICABLE STATE LABOR REGULATIONS.

8. USE WELDERS FULLY QUALIFIED AND LICENSED BY STATE AUTHORITIES.

9. GAS PIPING: INSTALLATION CODE FOR NATURAL GAS BURNING APPLIANCES AND EQUIPMENT.

10. GAS PIPING INSTALLATIONS SHALL CONFORM TO THE MINIMUM REQUIREMENTS LOCAL AUTHORITY HAVING JURISDICTION.

PRODUCTS
1. ALL ABOVEGROUND GAS PIPING 4" AND SMALLER SHALL BE ASTM A53, SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON FITTINGS. THREADED PIPE AND FITTINGS FOR PIPE 2" AND SMALLER, AND WELDED PIPE FOR 2½" PIPE AND LARGER.

2. GAS COCKS 2" AND SMALLER SHALL BE ALL IRON WITH BRASS SQUARE HEAD PLUG, EQUAL TO CRANE NO. 324.

3. GAS COCKS LARGER THAN 2" SHALL BE LUBRICATED PLUG COCKS WITH WELDING ENDS, WRENCH OPERATED. EQUAL TO NORDSTORM NO. 2025¼.

UNIONS AND COUPLINGS
1. SIZE 2½" AND UNDER: 150 PSI BLACK MALLEABLE IRON, GROUND JOINT BRASS TO IRON SEAT UNIONS FOR THREADED FERROUS PIPING AIR TESTED FOR GAS SERVICE. EQUAL TO GRINNELL 463 OR EQUAL.

CONNECTIONS
1. SCREW JOINT STEEL PIPING UP TO AND INCLUDING 1½", WELD PIPING 2½"AND LARGER, INCLUDING BRANCH CONNECTIONS. SCREW OR WELD 2 INCH PIPING. ALL INTERMEDIATE PRESSURE PIPE 2" AND LARGER SHALL HAVE WELDED JOINTS.

2. ALL EQUIPMENT CONNECTIONS SHALL BE PRECEDED BY A FULL LINE SIZE MANUAL SHUT-OFF COCK, PRESSURE REGULATOR, 6" DIRT POCKET AND UNION AT THE EQUIPMENT. UNION SHALL BE INSTALLED BETWEEN THE SHUTOFF COCK AND THE EQUIPMENT. PRESSURE REGULATORS SHALL BE RATED TO REGULATE FROM 2 PSI TO OUNCES PRESSURE AND WHEN LOCATED INSIDE THE BUILDING SHALL BE VENTED TO THE OUTSIDE ATMOSPHERE AS REQUIRED BY THE LOCAL AUTHORITY.

3. PROVIDE A 6" DIRT POCKET AT THE LOW POINT OF THE GAS LINE AND WHERE SHOWN ON THE DRAWINGS COMPLETE WITH A SCREWED CAP END.

4. WELDED JOINTS SHALL BE FUSION-WELDED UNLESS OTHERWISE REQUIRED. CHANGES IN DIRECTION OF PIPING SHALL BE MADE WITH WELDING FITTINGS ONLY. MITERING OR NOTCHING PIPE TO FORM ELBOWS AND TEES OR OTHER SIMILAR CONSTRUCTION WILL NOT BE PERMITTED. BRANCH CONNECTIONS SHALL BE MADE WITH WELDING TEES OR FORGED WELDING BRANCH OUTLETS.

BEVELING
FIELD AND SHOP BEVELS SHALL BE IN ACCORDANCE WITH THE RECOGNIZED STANDARDS AND SHALL BE DONE BY MECHANICAL MEANS OR FLAME CUTTING. WHERE BEVELING IS DONE BY FLAME CUTTING, SURFACES SHALL BE CLEANED OF SCALE AND OXIDATION PRIOR TO WELDING.

ALIGNMENT
BEFORE WELDING, THE COMPONENT PARTS TO BE WELDED SHALL BE ALIGNED SO THAT NO STRAIN IS PLACED ON THE WELD WHEN FINALLY POSITIONED. HEIGHT SHALL BE SO ALIGNED THAT NO PART OF THE PIPE WALL IS OFFSET BY MORE THAN 20 PERCENT OF THE WALL THICKNESS. FLANGES AND BRANCHES SHALL BE SET TRUE. THIS ALIGNMENT SHALL BE PRESERVED DURING THE WELDING OPERATION.

ERECTION
WHERE THE TEMPERATURE OF THE COMPONENTS BEING WELDED REACHES 32 DEGREES F OR LOWER, THE MATERIAL SHALL BE HEATED TO APPROXIMATELY 100 DEGREES F FOR A DISTANCE OF 3 FT ON EACH SIDE OF THE WELD BEFORE WELDING, AND THE WELD SIDE OF THE WELD BEFORE WELDING, AND THE WELD SHALL BE FINISHED BEFORE THE MATERIAL COOLS TO 32 DEGREES F.

ROUTE AND GRADES
1. ROUTE PIPING IN ORDERLY MANNER AND INSTALL DRIP LEGS FOR CONDENSATION COLLECTION POINTS. RUN PIPING ON DEDICATED ROOF AREA AND PARALLEL TO WALLS.

2. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.

3. BRANCHES AND TAKE-OFFS SHALL BE OFF THE TOP OF MAINS. ALL HORIZONTAL LINES SHALL PITCH TO RISERS OR APPLIANCES.

TESTING:
A. PROVIDE TEST PUMPS, GAUGES, METERS, AND OTHER INSTRUMENTS, MATERIALS, AND LABOR IN CONNECTION WITH TESTS.

B. DO NOT PAINT, COVER OR CONCEAL PIPING, SWING JOINTS, AND THE LIKE, BEFORE TESTING AND OBTAINING APPROVAL.

C. TEST PIPING WHICH WILL BE CONCEALED, IN SECTIONS AS APPROVED, IN A MANNER WHICH WILL NOT LEAVE ANY PIPE OR JOINT UNTESTED.

D. PRIOR TO TESTING PIPING SYSTEMS, REMOVE OR OTHERWISE PROTECT FROM DAMAGE, CONTROL DEVICES, AIR VENTS, AND OTHER PARTS WHICH ARE NOT DESIGNED TO STAND PRESSURES USED IN TESTING PIPING.

E. TEST WELDED PIPING FOR LEAKS, UNDER 100 PSI AIR PRESSURE WITH SOAP SUDS; THIS TEST SHALL PRECEDE HYDROSTATIC TEST.

F. MAKE NECESSARY REPAIRS AND REPEAT TESTS UNTIL THE ENTIRE SYSTEM IS APPROVED AND SATISFACTORY.

G. PERFORM SPECIFIED SERVICES WITH CONTRACTOR'S QUALIFIED PERSONNEL, OR EMPLOY AND PAY FOR A QUALIFIED ORGANIZATION TO PERFORM SPECIFIED SERVICES.

GAS PIPING

1. THE TEST PRESSURE FOR THIS SYSTEM SHALL BE 1.5 TIMES WORKING PRESSURE BUT NO LESS THAN 60 POUNDS PER SQUARE INCH. THIS TESTING WILL BE CONDUCTED BY USING AIR, CO2, OR NITROGEN PRESSURE TEST. THIS TEST WILL BE HELD FOR NO LESS THAN 1 HOUR WITH NO DROP IN PRESSURE. ALL JOINTS WILL BE SUBJECTED TO A VISUAL INSPECTION AND SOAP TEST. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPAIR ALL LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.

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STATE OF MICHIGAN — JOSEPH A. MEYER — No. 6201022031 — REGISTERED PROFESSIONAL ENGINEER
8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

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SCALE : PGMc
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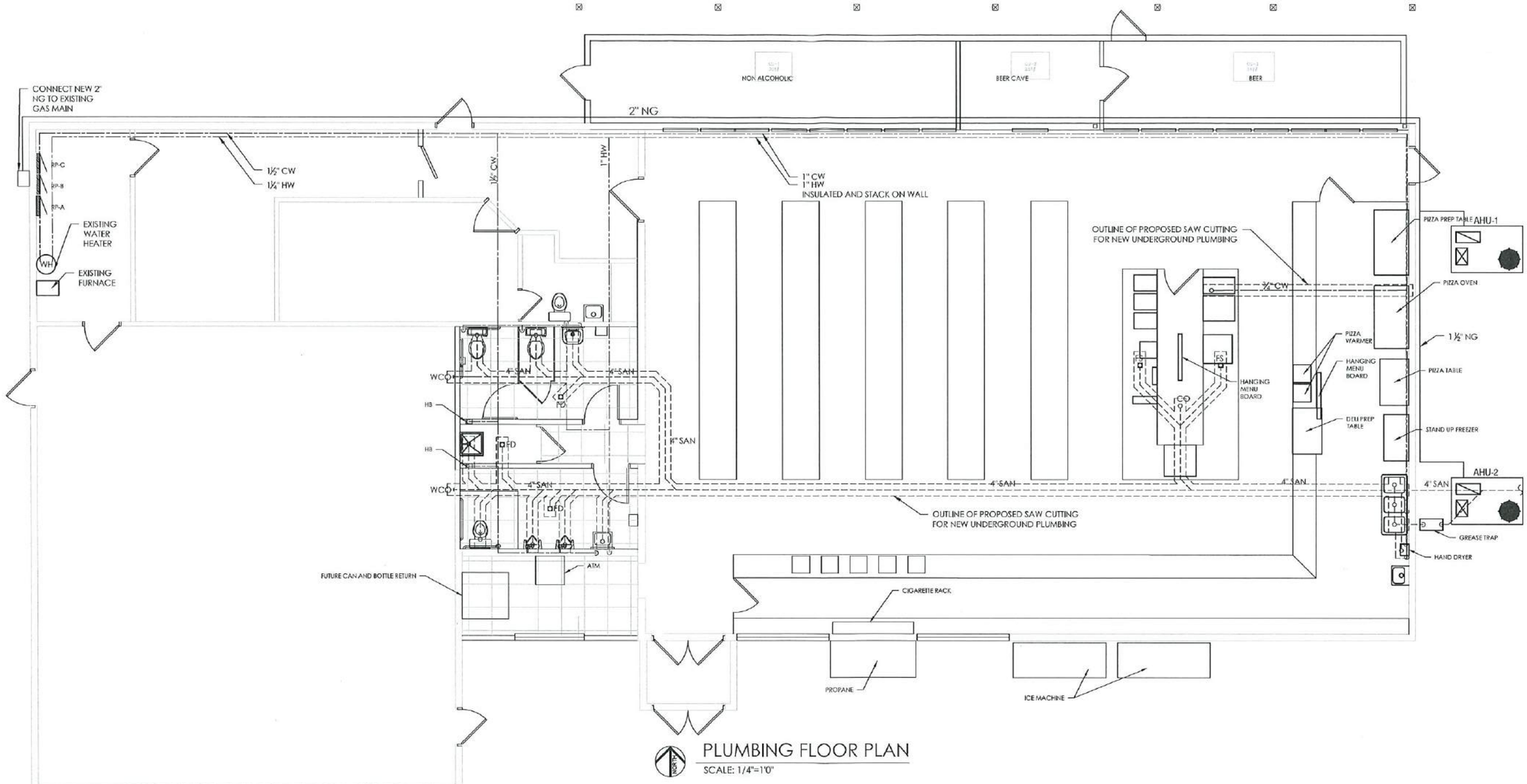
SHEET TITLE :
PLUMBING NOTES

SHEET
P-001



PLUMBING FLOOR PLAN

SCALE: 1/4"=1'0"

TRIUMPH

Triumph Engineering & Design, Inc.

10775 S. SAGINAW ST.
GRAND BLANC, MI 48439
(PH) 810.584.7364
(F) 810.584.7362

STATE OF MICHIGAN — LICENSED PROFESSIONAL ENGINEER — No. 6201022031

8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/26/2023

DRAWN : RHN
CHECKED : PDiBo
SCALE : PDiBo
JOB NO : TE-22-146

SHEET TITLE :
PLUMBING FLOOR PLAN

SHEET
P-100

GAS LOAD SCHEDULE

TE-22-168 - TYRONE PARTY STORE

ROOM NAME	EQUIPMENT	MIN / MAX PRESSURE REQ'D IN INCHES W.C.	TOTAL CFH
EXISTING UTILITY ROOM	EXISTING FURNACE	5.0"-10.5"	125.00
EXISTING UTILITY ROOM	EXISTING WATER HEATER	4"-14"	40.00
MAIN ROOM	PIZZA OVEN	3.50"	40.00
MAIN ROOM	PIZZA OVEN	3.50"	40.00
OUTSIDE	AHU-1	4" - 13"	195.00
OUTSIDE	AHU-2	4" - 13"	195.00
		TOTAL	635

Note : Gas loads subject to change based on Owner's final selection of equipment and available gas pressure at the project location. This schedule is to be used for design and estimating purposes only.

PLUMBING FIXTURE SCHEDULE

FIXTURE	ITEM	DESCRIPTION	MANF	MODEL	VALVE / TRIM	MANF	MODEL	PIPING SIZES					FLOW RATE GPM	DRAINAGE FIXTURE UNITS	ASSE DEVICE	GENERAL NOTES
								COLD WATER	HOT WATER	DIRECT WASTE	INDIRECT WASTE	VENT				
AG	AIR GAP FITTING	FIXED AIR GAP FUNNEL	J.R. SMITH	3950-3951												
FD-1	FLOOR DRAIN	FLOOR DRAINS FOR TOILETS AND FINISHED AREAS	J.R. SMITH	2000 SERIES						2"		1 1/2"		2		6" TYPE B SQUARE WITH ADJUSTABLE STRAINERS FINISHED IN NICKEL BRONZE, OR TO BE CHROME PLATED IN PUBLIC RESTROOMS AND GUEST LAUNDRY.
FFD	FUNNELED FLOOR DRAIN	DRIP & CONDENSATE FUNNEL	J.R. SMITH	3811-3824												
FS	FLOOR SINK	12" x 12" x 8" DEEP SQUARE NICKEL BRONZE TOP FOR INDIRECT WASTE	J.R. SMITH	3140						2"		1 1/2"		2		WITH CAST ALUMINUM DOME STRAINER
HB	HOSE BIBB EXTERIOR	NON-FREEZE TYPE w/ INTEGRAL VACUUM BREAKER	J.R. SMITH	5609QT				3/4"					5		1019	
HB	HOSE BIBB INTERIOR FINISHED AREAS	w/ INTEGRAL ASSE 1011 VACUUM BREAKER AND STAINLESS BOX	J.R. SMITH	5509QT-SAP				3/4"					5			HINGED LOCKING COVER
LAV-1	LAVATORY ADA	PUBLIC RESTROOM WALL MOUNTED, WHITE CHINA LAVATORY w/ 2.2 GPM DECK MOUNTED FAUCET	AMERICAN STANDARD	0355.012	CHROME DUAL HANDLE FAUCET	CHICAGO	895-317ABCP	1/2"	1/2"	1 1/2"		1 1/2"	0.4	1	1070	FAUCET HOLES ON 4" CENTERS, WALL HANGER INCLUDED. PROVIDE TEMPERED WATER TEMPERATURE CONTROL.
SS	SERVICE SINK	24"x24"x10" FLOOR MOUNTED	FIAT	MSB-2424	CHROME WALL MOUNT SERVICE SINK FAUCET	CHICAGO	897-CP	1/2"	1/2"	2"		1 1/2"	3	3	1052	
UR	URINAL	WHITE VITREOUS CHINA, 0.125 GPF, WALL MOUNTED, ELONGATED RIM, TOP SPUD	AMERICAN STANDARD	6590.001-81.020	FLUSH VALVE	AMERICAN STANDARD	6063.013.002	3/4"		2"		2"	1.0	4		SENSOR OPERATED FLUSH VALVE, MOUNTED TO BE ADA COMPLIANT.
WHA	WATER HAMMER ARRESTOR	PISTON TYPE WITH PRESSURIZED CUSHIONING CHAMBER.	J.R. SMITH	5005 - 5050												
WC-1	WATER CLOSET	FLOOR MOUNTED WHITE VITROUS CHINA, 1.6 GPF WITH ELONGATED FLUSHOMETER VALVE TOLET	AMERICAN STANDARD	2858.128				1"		4"		2"	1.6	4		
WC-2	WATER CLOSET ADA		AMERICAN STANDARD	211AA.104 4225A.104				1"		4"		2"	1.6	4		
WCO	WALL CLEANOUT	LEAD SEAL PLUG WITH STAINLESS STEEL ACCESS COVER	J.R. SMITH	4402												

GENERAL NOTES

1. ALL FIXTURE TRAPS TO HAVE A DEEP SEAL TRAP OR TRAP PRIMER WITH 1/2" CW PIPE, CONFORMING TO ASSE 1018 OR ASSE 1044. PROVIDE A 1/2" CW LINE IF TRAP PRIMERS ARE INSTALLED.
2. PROVIDE AN ASSE APPROVED BACKFLOW PREVENTER FOR ALL EQUIPMENT WITH A DIRECT CONNECTION TO THE POTABLE WATER SUPPLY, AND ALL EQUIPMENT WITH A HOSE CONNECTION. BACKFLOW PREVENTERS MUST BE IN COMPLIANCE WITH TABLE 608.1 OF THE PLUMBING CODE.
3. PROVIDE AN ASSE 1070 THERMOSTATIC MIXING VALVES ON ALL LAVATORIES AND SINKS.
4. PROVIDE SINGLE OUTLET SUPPLY STOP ON HOT WATER/ COLD WATER UNDER SINK EQUAL TO BRASSCRAFT NO. 03341 (BRASS) / OCR19R (PEX). (ALTERNATIVE)1/4 TURN MODEL: G2CR19 (BRASS) / G2BRPX19 (PEX) AS REQUIRED.
5. PLUMBING CONTRACTOR SHALL INSTALL AIR ADMITTANCE VALVE IN LIEU OF VENT PIPING TO SERVE FIXTURES WHERE APPLICABLE.
6. ADA LAVATORIES TO HAVE INSULATION KIT, WHITE, SELF FASTENING, FLEXIBLE VINYL FOR DRAIN TRAPS AND SUPPLY PIPING.
7. EXPOSED PLUMBING MUST BE CHROME PLATED.

1. WATER CLOSET NOTES
2. WATER CLOSETS IN PUBLIC AREAS MUST HAVE A TOILET SEAT WITH OPEN FRONT, NO LID.
3. WHERE WATER CLOSETS ARE REQUIRED TO BE ADA ACCESSIBLE, THE TOILET SEAT HEIGHT MUST COMPLY WITH CURRENT FEDERAL ADA REQUIREMENTS.
4. WHERE WATER CLOSETS ARE REQUIRED TO BE ADA ACCESSIBLE, PROVIDE RIGHT HAND OR LEFT HAND FLUSH VALVES TO ENSURE THAT THE FLUSH VALVE IS ON THE OPEN SIDE OF WATER CLOSET.
5. INSTALL SHOCK ABSORBERS ON ALL FLUSH VALVE SYSTEMS WITH ISOLATION VALVE AND ACCESS DOOR FOR MAINTENANCE.

FAUCET NOTES

1. ALL FAUCETS VALVE HANDLES SHALL BE PROVIDED WITH RED (HOT) AND BLUE (COLD) INDICATORS.
2. FAUCETS IN PUBLIC AREAS MUST BE LEVER STYLE AND ADA COMPLIANT. ACRYLIC HANDLES OR KNOBS ARE NOT PERMITTED.

EQUIPMENT SCHEDULE

MARK	QTY	FIXTURE	MANUFACTURER	MODEL	PIPING SIZES							FLOW RATE GPM	DRAINAGE FIXTURE UNITS	ELECTRICAL				NOTES
					GAS	MBH	COLD WATER	HOT WATER	DIRECT WASTE	INDIRECT WASTE	VENT			VOLTS	HP	MOP	WATTS	
FOOD PREP																		
A	1	BUNN FAST CUP	BUNN	#55400.0100										208		24	5000	
E	1	771 SLUSHIE MACHINE	FBD	TALL DOOR	CO2, N2, OR AIR		3/8"					2		215-245		20	3000	
F	1	774 SLUSHIE MACHINE	FBD	TALL DOOR			3/8"					2		215-245		30	5000	
H	1	SMOOTHE DISPENSER	FREAL	MINI BLENDING BAR					3/4" TUBE					120		15	1440	FREEZER REQUIRES SEPARATE 15A CIRCUIT FROM BLENDERS
	1	HAND LAVATORY (EXISTING)	BY OWNER	BY OWNER			1/2"	1/2"		2"		2	2					
	1	POT SINK - TRIPLE COMPARTMENT (EXISTING)	BY OWNER	BY OWNER			1/2"	1/2"		(3) 1 1/2"		2.5	2					WASTE TO FLOOR SINK
	1	PIZZA OVEN (EXISTING)	LINCOLN	1116-000-U-K1837	NG	40								120		15	840	
	1	PIZZA OVEN (EXISTING)	LINCOLN	1116-000-U-K1837	NG	40								120		15	840	

TRIUMPH

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www.triumphengr.com

STATE OF MICHIGAN — PATRICK G. MCCARTHY — No. 6201022031 — REGISTERED PROFESSIONAL ENGINEER — 8/7/23

TYRONE PARTY STORE
9485 CENTER ROAD
TYRONE TOWNSHIP, LIVINGSTON COUNTY, MI.

ISSUED FOR	DATE
OWNER REVIEW	12/01/2022
PERMITS	07/25/2023

DRAWN : RHN
CHECKED : PGMc
SCALE : PGMc
JOB NO : TE-22-168

SHEET TITLE :
PLUMBING SCEDULES

SHEET
P-101

Proposed Office Space Use Drawing For:

White's Quality Used Cars

9485 Center Road Fenton, Michigan

Part of Section 17, Tyrone Township, Livingston County, Michigan

Parking Calculations

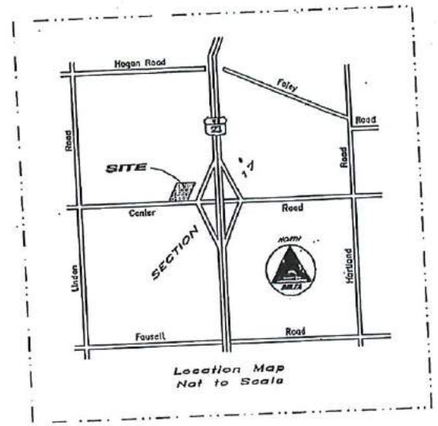
Convience Store
Gross Floor Area 1975 SqFt
Useable Area (80% Gross) 1580 SqFt
Required Parking (1580/100) 16 Spaces

Auto Sales
Outdoor Sales Area 1300 SqFt
Required Parking (1300/100) 13 Spaces
No Service Stalls
Auto Sales Employees 1 Employee

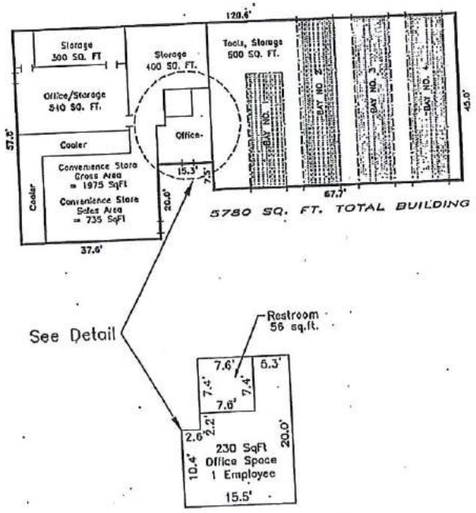
Auto Towing/Repair
Repair Stalls 4
Required Parking (4x3) 12 Spaces
Transport/Towing Vehicles 5
Required Parking (5x1) 5 Spaces
Employee Parking 1 Employee

Total Parking Required = 48 Spaces
Total Parking Provided = 58 Spaces

BENCHMARK
Delta tag in Power Pole
Assumed Elevation 100.00



Location Map
Not to Scale



24"x30" Sign on Face of Bldg.

RECEIVED
OCT 19 2009
TYRONE TWP CLERK

LEGAL DESCRIPTION
...BEGINNING AT THE SOUTHEAST CORNER OF SECTION 17, T4N-R6E, THENCE N 88°01'55" W ALONG THE SECTION ... N 24°09'57" E 305.64 FEET; THENCE S 88°01'55" E 250.00 ... W 250.00

General Notes

Site is 1.62 gross acres, 1.38 net acres
Site is Zoned ES, Expressway Service
... Wastewater is treated by an on site septic system.

STATE OF MICHIGAN
FRED SHALTZ
PROFESSIONAL SURVEYOR
No. 13595
LICENSED PROFESSIONAL SURVEYOR

Revision Dates	
08-03-2009	
08-13-2009	
08-24-2009	

DELTA LAND SURVEYING ENGINEERING
Land Surveying Civil Engineering
Land Planning
6060 Torrey Road Suite A Flint, MI
Phone (810) 655-5530 Fax (810) 655

White's Quality Used Cars

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

January 3, 2024

Preliminary Site Plan Review (Use Change)

for

Tyrone Township, Michigan

Applicant:	Michael Woods
Owner:	Michael Woods
Project Name:	Tyrone Party Store
Plan Date:	July 25, 2023
Location:	9485 Center Road Northwest corner of Center Road and Old US 23 Road (04-17-400-006)
Zoning:	ES – Expressway Service
Action Requested:	Amendment of an Approved Site Plan for Accessory Use to a Permitted Special Land Use

PROJECT NARRATIVE

The site is 1.62 acres. Onsite is a permitted auto service station / convenient store / gas station and special land use auto salvage yard. The applicant is requesting site plan approval to convert the existing auto service station into an expanded convenient store. If approved, the applicant will cease operations of auto services. It is unclear whether the auto salvage yard operations will cease along with the auto service use.

Per the Zoning Ordinance Section 23.13 Part E1 & E2, the change in use qualifies as a "Major Change".

1. *Concept. A change in the original concept of the development.*
2. *Use or Character. A change in the original use or character of the development.*

Per Section 23.13 A *"A change in an approved site plan which results in a major change shall require a site plan amendment. Amendments shall follow the procedures and conditions herein required for original site plan submittal and review. Any change shall require submittal of a revised site plan with a new date."*

The purpose of a site plan review is to evaluate complete and necessary compliance with Township ordinances and other federal, state, and county laws and regulations to assess preliminary approval. Site plans are reviewed by the Planning Commission which makes a recommendation to the Township Board for approval.

Information required to be included in a site plan is outlined in Section 23 Site Plan Review and Impact Assessment. The Planning Commission may waive any site plan requirements they consider to be clearly unnecessary for substantial review. The Planning Commission may also grant a waiver for the Impact Assessment if it determines that there is not a significant potential impact on surrounding properties as a result of the proposed development.
Given the proposed use will be of a lesser intensity than the current uses, we do not feel an Impact Assessment is necessary.

This report identifies information that is required for site plan review. Information or changes necessary for site plan review are identified throughout the report, with information or changes and decisions for site plan approval identified in the summary at the end of this report.

Items to be Addressed: *It should be stated on the application whether the auto salvage yard operations will cease along with the auto service station. This determination may affect the recommendations of this review.*

SITE DESCRIPTION

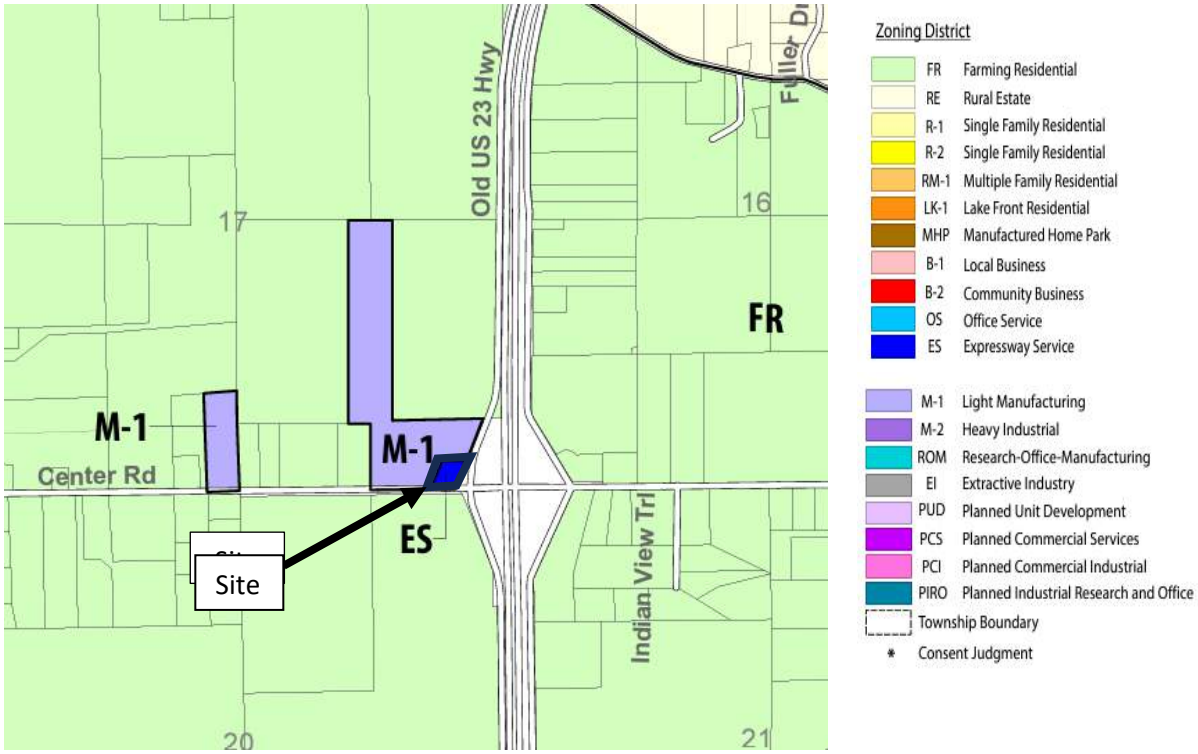
Lot Area:	1.62 Acres
Frontage:	~250 feet along Center Road
Current Use:	Gas Station / Auto Service Station / Convenient Store / Storage Yard

Aerial image of the site

Source: NearMap, Photo dated October 2nd, 2023

Existing Zoning:	**ES Expressway Service** *The ES expressway service districts are designed to provide for servicing the needs of highway traffic at expressway interchange areas. The avoidance of undue congestion on local roads, the promotion of smooth traffic flow at the interchange area, and the protection of adjacent properties in other zones from adverse influences of traffic are prime consideration in the application of this district. The following regulations shall apply to all ES districts, and no building, structure or premises, except as otherwise provided in this section shall be erected, altered, or used except for one or more of the following specified uses. Site plan review, as defined in Article 23, shall be required for, all uses in the ES district.*

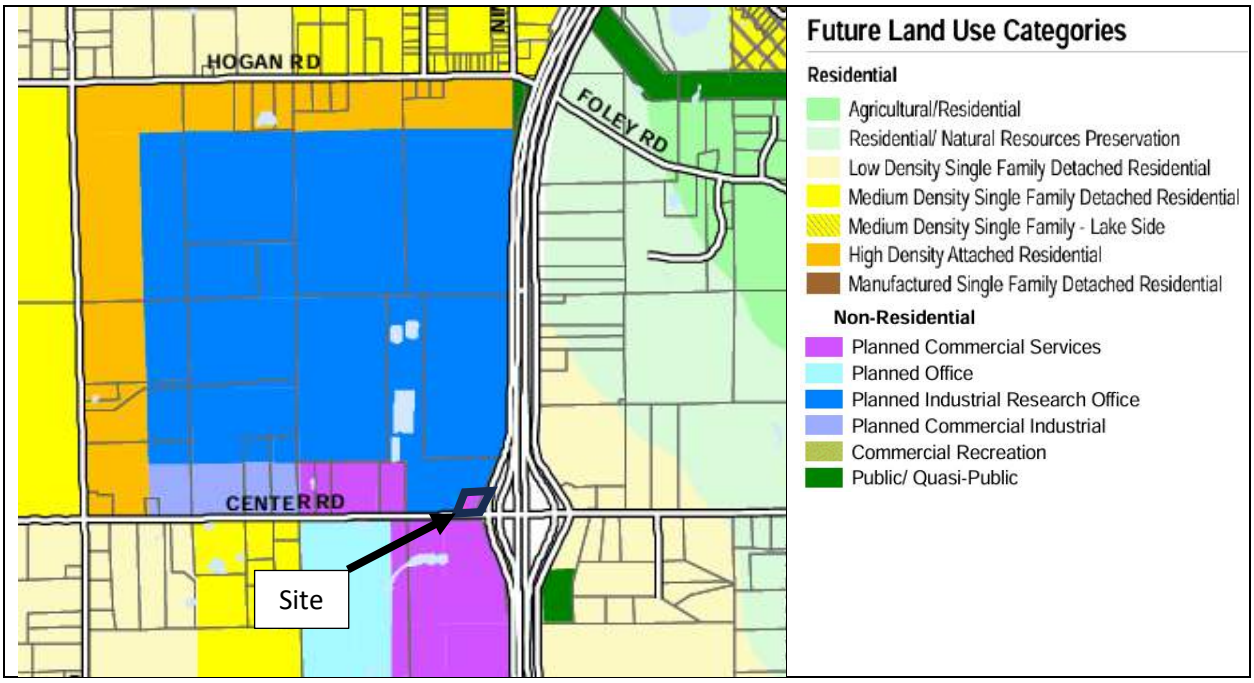
Current Zoning Map



Source: Tyrone Township Zoning Map, July 20, 2017

Future Land Use Map:	**Planned Commercial Services** *Commercial retail and service uses are intended to be located in a PUD environment. The uses may be individually sited in freestanding buildings, clustered in a larger commercial structure housing several uses under one roof such as a shopping center, or contained in a mixed-use building on a floor below any residential uses. It is recognized that new commercial uses may serve the Tyrone community or the travelers on U.S. 23 or both the community and highway travelers. The uses in this category require good access and are planned for locations abutting major thoroughfares. Local streets and residential neighborhoods are not appropriate locations. Regardless of whether the use is local or regional in scale, the site and attendant site facilities to service the use must be constructed consistent with the guidelines specified for planned development. The Future Land Use Map calls for Planned Commercial Services near the Center Road/U.S. 23 interchange, and also a small area along Old U.S. 23 near Dean Road.*

Future Land Use Map



Source: Tyrone Township Master Plan 2012

	North	East	South	West
Surrounding Zoning	*M-1 / Light Manufacturing*	*FR / Farming Residential*	*FR / Farming Residential*	*M-1 / Light Manufacturing*
Surrounding Land Uses	*Light Industrial*	*US 23 Highway ROW / Single Family Residential*	*Commercial Recreation / Golf Club*	*Light Industrial*
Future Land-Use Map	*Planned Industrial Research Office*	*Low Density Single Family Detached Residential*	*Planned Commercial Services*	*Planned Industrial Research Office*

Items to be Addressed: *Aerial photos as well Sheet C3.0 indicate site parking and storage operations exceed the eastern lot line. We recommend site operations conform to property lot lines.*

AREA, WIDTH, HEIGHT, SETBACKS

The proposed expansion of the building envelope is shown on the site plan. Measurements are taken from the property lines.

Developmental standards for the current zoning district are outlined below.

ES Expressway Service District Developmental Standards

	Required: ES	Proposed:	Complies
Setbacks			
Front	**100 feet**	**78.5 feet**	**Yes**
Side	**20 feet**	**19.3 feet (west)** **Not Provided (east)**	**No** **Unknown**
Rear	**20 feet**	**63.6 feet**	**Yes**
Building Height			
	30 feet	**19 feet (using scale)**	**Unknown**
Building Coverage			
	40 percent	**6.9 percent**	**Yes**

Items to be Addressed: *1.) The existing structure encroaches the west side yard setback. Documentation either through ZBA approval or pre-existing nonconformity needs to be submitted for review. 2.) The east side yard setback measurement must be added to sheet C3.0. 3.) Building height must be measured from grade to the mid-point between the eave and ridge and added to Sheet A1.3.*

NATURAL RESOURCES

Topography: The site is relatively flat.

Wetlands: The site does not contain any wetlands.

Woodland: The site is clear of wooded areas.

Soils: The predominant soils are sandy loam and loam.

Water: This site does not contain any natural or manmade water features.

Items to be Addressed: *None.*

ACCESS & CIRCULATION

The site will continue to be accessed via the existing forty (40) foot wide access drive from Center Road, a paved county road, along the southern border of the site.

Existing parking consists of twenty (20) standard parking spaces and four (4) handicap parking spaces. Per Section 25.04 B, handicap spaces must be at least ninety-six (96) inches wide and be adjacent to an access aisle that is at least sixty (60) inches wide.

The current auto services related to the sale of fuel to vehicles has the following requirements per Section 25.11 C 3:

> "Automobile Service, two (2) parking spaces for each lubrication stall, rack or pit and three (3) spaces for each one (1) fuel pump, plus two (2) stacking spaces per fuel pump plus one (1) per transport or towing vehicle and one (1) per employee.

The proposed use of an expanded convenient store (retail store) has the following parking requirements Per Section 25.11 C 24:

> "Retail Store, one (1) parking space for every two hundred (200) square feet of usable floor area."

	Required	**Provided**	**Complies**
Parking			
Automobile Service			
	Three (3) spaces for each one (1) fuel pump = 18 spaces	18	Yes
	Two (2) stacking spaces per fuel pump = 6 spaces	Unknown	Unknown
	One (1) per transport or towing vehicle = 0 spaces	N/A	N/A
	One (1) per employee = Unknown	Unknown	Unknown
Total	**Unknown**	**24 spaces**	**Unknown**
Retail Store			
	one (1) parking space for every two hundred (200) square feet of usable floor area = 15 spaces	0	No
Total	**15 spaces**	**24 spaces**	**Unknown**

Parking calculations are provided on Sheet C3.0 but use the retail store requirements for all usable square feet. However, gas stations are defined under "auto service station", in the Zoning Ordinance. If the gas station operations are to remain, the calculations above show deficiencies. These cannot be accurately calculated as no peak employment information or vehicle stacking space was provided in the application.

Section 25.05 offers criteria under which joint parking uses are applicable. However, we do not feel these terms offer any options for the current proposed uses due to the requirement that uses for which the joint off-street parking facilities serve do not operate during the same hours of the day or night.

A loading area is not defined on the site plan. Per Section 25.03 D and Section 25.11, at least one loading space is required and not to be placed on the front side of a commercial or industrial building. There appears to be adequate area in the rear yard for delivery vehicles, if storage activities cease. It should be

determined whether the gate separating the parking area and storage area will remain as its presence will complicate rear yard deliveries.

The general condition of the paved lot is poor. Several areas have significant cracks and/or potholes. Cold patch is present in an attempt to remedy these items. However, drivers may be inclined to take indirect routes throughout the lot to avoid poor conditions, possibly leading to unsafe circulation on the site. Per Section 25.09, all paving in the parking facility shall be maintained to insure safe pedestrian movement, vehicular operation, adequate protection of adjoining properties and to present a neat and attractive appearance of the facility.

We defer to the Township Engineer and the Fire Chief on other comments related to site access and circulation.

***Items to be Addressed**: 1.) Handicap spaces must be the correct dimensions and shown on Sheet C3.0. 2.) Parking should be calculated based on auto service station as well as retail use. 3.) One (1) loading space must be added and shown on Sheet C3.0 per Section 25.03 D and Section 25.11 4.) Pavement repair to assure safe circulation on site*

ESSENTIAL SERVICES & UTILITIES

Sheet C2.0 and C3.0 state that all utility locations have been obtained from field survey information and existing drawings, if available. The surveyor and/or engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The statement also indicates that the exact locations of the shown utilities may not be accurate though they do certify that the utilities are located as accurately as possible given available information. The surveyor/engineer has not physically located the underground utilities.

Sheet C2.0 and C3.0 also note that per observations the site is currently supplied by or has access to the following public utilities: gas, electric and telephone either located adjacent to the subject site or within public road right-of-way.

A gas main is shown running approximately parallel to the east property line and entering the existing building. While the existing overhead electricity line is shown along Center Road, it is unclear where electrical service connects to the building.

The legend and color (yellow) used to show existing sewer infrastructure is blurred and difficult to identify on Sheet C2.0 and C3.0. Given the current operations, it is assumed the site has sufficient water/sewer service. However, a note should be added to Sheet C2.0 and C3.0 stating if the site is well/septic or public water/sewer. The sheet must also use colors and text that clearly identify infrastructure by name and location.

Sheet C2.0 and C3.0 state the property is zone “X” (areas of minimal flooding) of the flood insurance rate map community panel No. 26093C02250 which bears an effective date of September 8th, 2008 and is not in special flood hazard area.

We defer additional comments on essential services, utilities, and stormwater management to the Township Engineer.

Items to be Addressed: *1.) Confirmation that the proposed building expansion does not interfere with any overhead of underground water/sewer/storm lines and/or any underground or overhead electrical service. 2.) The placement and/or specifications of current utility infrastructure on Sheets C2.0 and C3.0 should be clearly legible and identifiable.*

LANDSCAPING & SCREENING

Existing landscaping is shown on Sheets C2.0 and C3.0. No new landscaping is proposed. Section 21A.09 of the Zoning Ordinance states in consideration of the overall design and impact of a specific landscape plan, and in consideration of the amount of existing plant material to be retained on the site, the Planning Commission may modify the specific requirements described herein, provided that any such adjustment is consistent with the intent and purpose of that section and the Zoning Ordinance in general. In determining whether a modification is appropriate, the Planning Commission shall consider whether the following conditions exist:

- Topographic Features
- Parking
- Public Benefit

The existing plants are not labelled "to be saved" or "to be removed". For the purposes of this review, we will consider all existing plant material and landscaping to be unaltered for the proposed addition.

Front Yard Requirements: Wherever front, side or rear yards adjacent to public rights-of-way are used for parking, either a berm or greenbelt shall be required to screen the parking from view of the road. The Planning Commission, in its sole discretion, shall determine whether a berm or greenbelt shall be required for each development proposal.

Right-of-Way	Adjacent Parking Spaces	Existing Conditions
Center Road	**Three (3)**	**Rock wall and six (6) deciduous trees**
N. Old US 23 Hwy	**Nine (9)**	**None**

The landscaping along North Old US 23 Hwy is not considered in this review because it is not on the applicants property.

The Planning Commission will need to determine if existing conditions fulfill this requirement.

Protective Screening Requirements: Protective screening in the form of a berm, greenbelt or obscuring wall shall be required wherever a nonresidential use in a business, office or industrial district abuts directly upon land zoned for residential or agricultural purposes. The Planning Commission, in its sole discretion, shall determine whether a berm, greenbelt or obscuring wall shall be used for protective screening.

Abutting Property Border	Zoned	Protective Screening Required
North	**M-1**	**No**
East	**Right-of-Way**	**No**
South	**Right-of-Way**	**No**
West	**M-1**	**No**

Though not required along any property line, the Planning Commission must determine if it will require landscaped screening along any portion of the property perimeter. It should be noted that no available space exists along the eastern property line for on-site landscaping.

Landscaping Adjacent to Roads: All front, side or rear yards adjacent to roads, including berm areas, shall be landscaped in accordance with the following schedules:

Type of Planting	Frequency (per front feet of road frontage)	Right-of-Way	Required	Provided	Complies
Deciduous tree	Per 40 feet or fraction thereof	Center Road (210 feet of frontage)	Five (5)	Six (6)	Yes
		N. Old US 23 Hwy (306 feet of frontage)	Eight (8)	None	No
Total			**Thirteen (13)**	**Six (6)**	**No**
Ornamental Tree	Per 100 feet or fraction thereof	Center Road (210 feet of frontage)	Two (2)	Unknown	Unknown
		N. Old US 23 Hwy (306 feet of frontage)	Three (3)	None	No
Total			**Five (5)**	**Unknown**	**Unknown**
Shrubs	Per 40 feet or fraction thereof	Center Road (210 feet of frontage)	Eight (8) minimum	None	No
		N. Old US 23 Hwy (306 feet of frontage)	Eight (8) minimum	None	No
Total			**Sixteen (16)**	**None**	**No**

It is unknown if any existing deciduous trees are also ornamental trees. Due to the site layout, no room exists to install landscaping required along N. Old US 23 Hwy.

There are twenty (20) existing evergreen trees along the northern half of the west property line. There are twenty-six (26) existing evergreen trees along the western half of the north property line.
The Planning Commission will need to determine if it will require additional landscaping along Center Road and North Old US 23 Hwy.

General Landscaping Requirements: Section 21A.04 requires sites utilize grass and/or groundcover for all unpaved portions of a site. It also requires one (1) tree per three thousand (3,000) square feet or portion of any unpaved open area for which specific landscaping requirements within the Section do not apply. Below are notes on these requirements:

	Required	Provided	Complies
Unpaved Portions of the Site			
	All unpaved portions of site will be covered with grass and/or ground cover	**Existing lawn/ground cover**	**Yes**
Mixture of Trees			
	One (1) tree per three thousand (3,000) square feet of unpaved open space	**Unknown**	**Unknown**

The Planning Commission will need to determine if it will require information to calculate general landscaping requirements for one (1) tree per three-thousand (3,000) sqft of unpaved open surface.

Parking Lot Landscaping: Section 21A.04D provides details on required off-street parking landscaping requirements. Notes provided below:

	Required	Provided	Complies
Landscape Ratio			
	Fifteen (15) square feet of interior landscaping per parking space 15 square feet x 24 parking spaces = 360 square feet of interior landscaping	Unknown	**Unknown**
Minimum Area			
	Landscaped areas in parking lots shall be no less than five (5) feet wide in any dimension and no less than one hundred (100) square feet in area.	Unknown	**Unknown**
Required Plantings			
	Minimum of one (1) tree per three hundred (300) square feet or fraction thereof of the interior landscaped area.	Unknown	**Unknown**

Parking lot landscaping requirements are written to refer to parking lot islands or aisleways of which the current proposal has none. Sheet C3.0 indicates some landscaping near the entrance of the existing convenience store but no dimensions or plant specifications are provided.

All site parking is either aligned along existing structures or at the extents of the existing parking lot. Given the limited ability to add parking lot islands, per Section 21A.04D2, the Planning Commission may approve placement of the landscaped areas adjacent to a parking area when, in the sole opinion of the Planning Commission, such placement shall achieve the objectives of this section.

The Planning Commission will need to determine if existing landscaping adjacent to all parking areas fulfill this requirement.

Landscaping Varity: Section 21A.04I requires a variety of trees to be used throughout the site to prevent mass loss from disease.

Required Number of Trees	Minimum Number of Species	Complies
(All Existing) **Thirteen (13) Deciduous Trees + Five (5) Ornamental Trees = Eighteen (18) Trees**	**Two (2)**	**Yes**

Solid Waste Receptacles: Section 21A.11 requires all waste receptacles shall be enclosed by a wooden or masonry wall equal to the height of the receptacle or not less than five (5) feet high with an opaque lockable gate to prevent unsightly collection of refuse. The receptacle shall be located in the rear of the site unless prevented by topographic conditions. In all cases, the receptacles shall be located where it will be least visible from the public right-of-way and adjacent properties.

Sheet C3.0 shows an existing six (6) foot wood fence for the dumpster area. Gate specifications were not provided. The location of the dumpster does not comply with Section 21A.11 as the proposed location is in the side (west) yard and visible from Center Road. Given no topographic challenges, the receptacle should be relocated to the rear of the building.

Items to be Addressed: *1.) Dumpster gate specifications should be added to Sheet C3.0. 2.) The location of the dumpster should be moved to the rear of the building and shown on Sheet C3.0. 3.) Planning Commission will need to determine if existing conditions fulfill front yard landscaping requirements. 4.) Planning Commission will need to determine if it will require landscaped screening along any portion of the property perimeter. 5.) Planning Commission will need to determine if existing conditions fulfill landscaping adjacent to roads requirements. 6.) Planning Commission will need to determine if it will require information to calculate general landscaping requirements for one (1) tree per three-thousand (3,000) sqft of unpaved open surface 7.) Planning Commission will need to determine if existing landscaping adjacent to parking areas fulfill requirements.*

LIGHTING

The site plan shown on Sheet C3.0 indicates two existing light poles located at opposite ends along the southern portion of the lot directed at parking areas. The light pole closest to North Old US 23 Hwy is not on the applicant's property. Building lighting is not indicated on site plans or building elevations. No photometric information, including footcandle measurements, was included in the site plan.

Section 21.37 states the Planning Commission shall require the submission of a photometric plan prepared by an electrical engineer, or other qualified expert, graphically illustrating the planned layout and foot candles of site lighting. A photometric plan may be required to ensure compliance with the above standards and that adequate light levels are provided on the site. The plan shall also indicate the type and heights of light fixtures proposed, the wattage proposed to be used, and all pertinent photometric information for the fixtures, site and project.

Items to be Addressed: *A photometric plan showing the current site lighting should be added to the site plan to allow the Planning Commission to determine if additional or improved lighting is needed.*

SIGNAGE

Sheet C3.0 shows the location of an existing sign. However, no structural or sign dimensions are provided. Table 27.1 of the Zoning Ordinance outlines permitted and non-permitted sign allowances and regulations per zoning district. Applicant has not stated whether new convenience store will require new freestanding or building wall signage.

Items to be Addressed: *Applicant should refer to Section 27 of the zoning ordinance if/when existing signage is modified to accommodate the change in use.*

ARCHITECURAL STANDARDS

Per Section 23.18, site plans shall include information relating to certain architectural elements as it relates to the standards set forth in that section. Section 23.18F states where an addition is being proposed for an existing building, the existing facade materials may be used in the addition provided that the following criteria have been met:

1. The addition does not exceed one hundred (100) percent of the existing building floor area.
2. All new facades substantially constitute a continuation of the existing facades with respect to color, texture, size, height, and location of materials.
3. That the visual effect is to make the addition appear as part of the existing building.

It cannot be determined whether this site plan meets all requirements as no rear or side elevations with exterior construction materials has been provided. Sheet A1.3 provides basic exterior construction materials for the front elevation but only indicates color for the asphalt shingles. All other materials are to be specified by the owner. If all proposed materials are meant to constitute a continuation of the existing façade and the proposed addition is meant to appear as part of the existing building, this section would provide an exception from Section 23.18N requirements. To determine this, Sheet A1.3 should clarify if proposed infill exterior construction materials for all elevations will match existing exterior construction materials. Side and rear elevations showing the proposed addition and specifying exterior construction materials and their location should be provided on new sheets. The specifications for framing materials to be used for the new proposed double door entry are shown on Sheet A1.2 but are missing from Sheet A1.3 and should be added so all façade materials are shown on one sheet.

Two (2) Air Handling Units (AHU's) are shown on HVAC and Plumbing floor plans at the eastern end of the building. However, these units are not shown on Sheet C3.0. It should be clarified if these units are new and what their proposed location is as this equipment is typically found on rooftops. Mechanical equipment on rooftops must conform to Section 23.18C

An Architectural Review Committee shall review all proposed building materials and colors prior to a formal site plan review by the Planning Commission.

If the requirements in Section 21.38F are not fulfilled, Section 23.18N provides a Schedule Regulating Facades Materials. Sheet A1.3 provides finish materials stated as ledger stone veneer, metal staggered shaker siding and asphalt shingles (canopy and roof) but does not provide percentages associated with the amount of coverage. This information will need to be added to assess if the proposed materials and amounts confirm to Group 2 of the table.

Should the Planning Commission find the design and proposed materials sufficient, Section 23.18I offers a facade waiver. When a particular building design and the materials and colors or combination of materials and colors proposed to be used on the facade are found to be consistent with the intent and purpose of Section 23.18 but may differ from the strict application of this Section and the Schedule Regulating Facade Materials, the Planning Commission and Township Board shall consider such proposal as a waiver of these standards. Site plans and architectural plans for a waiver under this Section shall be

accompanied by a definitive description of the building design consisting of written statements which shall describe how the selected façade materials and/or colors and material combinations will be consistent with and will enhance the building design concept and how the materials and/or colors properly relate to the buildings in the surrounding area. The Planning Commission or Township Board may, as part of its review, request a report and recommendation from a professional design consultant as to the proposed waiver, and may establish a fee for this report.

Items to be Addressed: *1.) Color specifications for all materials should be provided on Sheet A1.3 in color print. 2.) To determine if Section 23.18F requirements have been fulfilled, Sheet A1.3 should note whether proposed infill exterior construction materials for all elevations will match existing exterior construction materials. Side and rear elevations showing the proposed addition as well as specifying exterior construction materials and their location should be added to the site plan. 3.) The specifications for framing materials to be used for the new proposed double door entry should be added to Sheet A1.3 4.) the Architectural Review Committee shall review all building materials prior to site plan approval. 5.) Building material façade finishes shown on Sheet A1.3 should include percentages of coverage as well as conformance to the materials specific in Section 23.18N Group 2 if Section 23.18F is not fulfilled. 6.) Mechanical equipment location must be shown on Sheet C3.0 as well as A1.3 to ensure proper placement and screening (if necessary).*

SUMMARY

Given the request is to change the use of the site to less intense operations, we feel that the following issues need to be resolved before a recommendation of approval:

1. A clear statement from the applicant regarding the cease of operations for the auto salvage/storage yard
2. Decisions from the Planning Commission on the following waivers:
    a. dumpster location
    b. landscaping
    c. proposed building materials

If the Planning Commission recommends approval of the site plan to the Township Board, we recommend the following conditions:

1. It should be stated on the application whether the auto salvage yard operations will cease along with the auto service station.
2. Site parking and storage operations exceed the eastern lot line. Future site operations should conform to property lot lines.
3. The existing structure encroaches the west side yard setback. Documentation either through ZBA approval or pre-existing nonconformity needs to be submitted for review.
4. The east side yard setback measurement must be added to sheet C3.0.
5. Building height must be measured from grade to the mid-point between the eave and ridge and added to Sheet A1.3.
6. Handicap spaces must be the correct dimensions and shown on Sheet C3.0.
7. Parking should be calculated based on auto service station as well as retail use.
8. One (1) loading space must be added and shown on Sheet C3.0 per Section 25.03D and 25.10.

9. Per Section 25.09, pavement repairs should be made to assure safe circulation on site.
10. Written confirmation should be provided stating the proposed building expansion does not interfere with any overhead or underground water/sewer/storm lines and/or any underground or overhead electrical services.
11. Existing utility infrastructure on Sheets C2.0 and C3.0 should be clearly legible and an identifiable color.
12. Dumpster gate specifications should be added to Sheet C3.0.
13. The location of the dumpster should be moved to the rear of the building and shown on Sheet C3.0.
14. Consider the power granted per Section 21A.09, the Planning Commission will need to determine if existing conditions fulfill front yard landscaping, landscaping screening along the property perimeter, unpaved open surface, landscaping adjacent to roads and landscaping adjacent to parking area requirements.
15. A photometric plan showing the current site lighting should be added to the site plan to allow the Planning Commission to determine if additional or improved lighting is needed.
16. Applicant should refer to Section 27 of the zoning ordinance if/when existing signage is modified to accommodate the change in use.
17. Color specifications for all materials should be provided on Sheet A1.3 in color print.
18. To determine if Section 23.18F requirements have been fulfilled, Sheet A1.3 should note whether proposed infill exterior construction materials for all elevations will match existing exterior construction materials. Side and rear elevations showing the proposed addition as well as specifying exterior construction materials and their location should be added to the site plan.
19. The specifications for framing materials to be used for the new proposed double door entry should be added to Sheet A1.3
20. The Architectural Review Committee shall review all building materials prior to site plan approval.
21. Building material façade finishes shown on Sheet A1.3 should include percentages of coverage as well as conformance to the materials specific in Section 23.18N Group 2 if Section 23.18F is not fulfilled.
22. Mechanical equipment location must be shown on Sheet C3.0 as well as A1.3 to ensure proper placement and screening (if necessary).

Respectfully submitted,

CARLISLE/WORTMAN ASSOC.,INC
Megan Masson-Minock, AICP
Principal

CARLISLE/WORTMAN ASSOC., INC.
Matteo Passalacqua
Community Planner

NEW BUSINESS #2

Election of Officers

(No documents attached)