Planning Commission

Planning Commission Meeting Agenda
Hartland Township Hall
Thursday, November 17, 2022
7:00 PM

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Approval of the Agenda
5. Approval of Meeting Minutes
   a. Planning Commission Meeting Minutes of September 22, 2022
6. Call to Public
7. Public Hearing
   a. Site Plan with Special Land Use Application #22-015 (Mini warehouse establishment with outdoor storage as accessory to a permitted use)
8. Old and New Business
   a. 2023 Planning Commission Meeting Calendar
9. Call to Public
10. Planner's Report
11. Committee Reports
12. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION DRAFT MEETING MINUTES

September 22, 2022– 7:00 PM

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1. **Call to Order: Chair Fox called the meeting to order at 7:00 p.m.**

2. **Pledge of Allegiance:**

3. **Roll Call and Recognition of Visitors:**
   Present – Commissioners Fox, Grissim, Mayer, McMullen, Mitchell, Murphy, Eckman
   Absent – None

4. **Approval of the Meeting Agenda:**
   A Motion to approve the September 22, 2022 Planning Commission Meeting Agenda was made by Commissioner Mitchell. Seconded by Commissioner Grissim. Motion carried unanimously

5. **Approval of Meeting Minutes:**
   None

6. **Call to the Public:**
   None

7. **Old and New Business**
   a. Site Plan Application #22-010 Buffalo Wild Wings Restaurant (Hartland Towne Square Planned Development)

      Director Langer gave an overview of the location and scope of the request stating the following:
      - Hartland Towne Square Planned Development (PD).
      - Must review PD requirements along with the Site Plan.
      - Across Hartland Square Drive from Emagine Theater.
      - Site down restaurant, no drive-through.
      - National chain: Buffalo Wild Wings.
      - Will not need Township Board approval, can proceed to the construction phase when approved.

      Representing the Applicant: Robert Kramer of Buffalo Wild Wings and Wayne M. Perry, P.E. of DESINE INC introduced themselves.

      Chair Fox referred to the staff review letter dated September 15, 2022.

      Site Requirements

      Parking Lot/Internal Drive Set Backs
      Director Langer explained the following:
      - Referred to an overall site plan of Hartland Towne Square: Outlot 7.

- No available land divisions so the property owners are doing a condominium.
- Four (4) components to the condominium, one of which is for the monument sign.
- Monument sign boundary line is creating a conflict with the parking setback for Buffalo Wild Wings.

The Applicant is asking for relief from the required setback for those parking spaces. **The Planning Commission agreed.**

Building Height
Director Langer stated the following:

- PD Pattern Book outlines a maximum height of twenty-six (26) feet to the top of a parapet wall on a building facade.
- Applicant is requesting twenty-eight (28) feet for the entry portion.
- There is a provision allowing architectural elements to exceed that limitation.
- Planning Commission can either grant the requested waiver, or determine the entry an architectural element, which would make it compliant.

The Planning Commission granted the waiver to allow the entry parapet wall to be twenty-eight (28) feet.

Site Requirements - Off-Street Parking
Director Langer stated the following:

- There is adequate parking per the PD requirements which is less than the standard Ordinance requirement with the intent to limit the amount of asphalt.
- Bumper blocks near the entrance are typically added when there is a five (5) foot wide sidewalk to eliminate vehicle bumpers from encroaching on the sidewalk, limiting the width to less than five (5) feet. Here the sidewalk is seven (7) feet eliminating the need for the bumper blocks entirely in this location.

  Chair Fox asked if these were the handicap spaces that are flush with the sidewalk. The Applicant confirmed they are, and their intent is to eliminate the option for vehicles to accidentally roll up onto the sidewalk. Chair Fox stated he is not a fan of bumper blocks, but he sees the value in them in this situation. The Applicant stated they could drop the parking lot asphalt six (6) inches and then add the necessary ramps, but they thought this was a better solution. **Chair Fox and the Planning Commission agreed.**

  Commissioner Grissim asked if on the left side with the six (6) foot wide concrete walk, the drive aisle is twenty-six (26) feet. Could it be modified to twenty-five (25) feet and the walk be seven (7) feet? The Applicant stated the Fire Department requires twenty-six (26) feet. Commissioner Murphy asked if the entire parking lot could be shifted one (1) foot to achieve the seven (7) foot walk. The Applicant stated they must meet the ten (10) foot setback; there is no place to go.

  The Planning Commission and Applicant discussed waiving the ten (10) foot setback at that location and making it nine (9) feet as it backs up to the detention area, the ADA access requirements for sidewalks, and the Township preference for seven (7).

  The Planning Commission decided to leave the sidewalk on the left side as is shown on the site plan.

Dumpster Enclosure (Per approved Pattern Book - Page 41)
Director Langer stated the current design does not comply, but the Applicant is aware and has already agreed to use brick that will match the building rather than the metal panels. It will be shown on the Construction set of drawings.

Lighting
Chair Fox mentioned a drawing of the light pole and base, with the overall height stated, should be provided on the Construction set of plans, and it should be stated the color of the poles will be black. The Applicant agreed.

Landscaping
Adjacent to Roads - Hartland Square Drive
Commissioner Grissim stated what is shown does not quite meet the standards, but they have adequately screened the parking area, so she is satisfied with what is proposed.

Chair Fox stated the M-59 Road Landscaping complies.

US-23
Director Langer stated the listed height of the evergreen tree (Norway Spruce) is six (6) feet, and the required height is eight (8) feet at the time of planting. The landscape plan shall be revised to change the tree height on the Construction set of plans. The Applicant agreed.

Commissioner Mayer expressed concern that one of the existing Pine trees closest to the proposed paring area that are part of the landscaping around the sign and water fall might be damaged or removed. He also mentioned the underground wiring for the lighting could be damaged during construction as well. Director Langer replied they would have to replace the tree if it died due to construction activities, but it is difficult to replace a mature tree and is typically replaced with a smaller tree. Commissioner Grissim stated it is a case by case issue, they should install some tree protection during construction, but it is a concern. **Chair Fox suggested a limited time frame of one (1) year, so if the tree dies within one (1) year of construction, the developer will have to replace it. The Applicant agreed.**

Architecture / Building Materials (Per approved Pattern Book, Pages 24, and 36-38)
Director Langer stated the following:

- Prototype building.
- Complies with the requirements for the most part.
- Fiber cement panels are limited to ten (10) percent of the total façade materials. They have proposed it in two (2) different patterns.
- Considered “siding.”
- Sample boards have been provided.

The Planning Commission granted the architectural waiver request to deviate from the allowed percentage of siding, as specified in the Pattern Book Materials Schedule.

LED Lighting
Director Langer stated the following:

- Proposing shielded LED light bands on east elevation (yellow tone) s shown on the east elevation.
- Outlines the main entry to the restaurant.
- LED light band is shielded with an aluminum shield such that the light is directed toward the building and washes the façade with light.

- A detail drawing of the LED band and shield is shown on Sheet A201.

Commissioner Murphy asked if that sort of lighting would be considered a sign. Director Langer stated no, not if the lights are covered. It is possible the older style of neon wrapping a building might be considered a sign of sorts, but this is different. Chair Fox stated it is preferable to a large yellow façade.

The Planning Commission briefly discussed some of the architectural elements.

The Planning Commission agreed to the LED Lighting as proposed.

Commissioner Mitchell asked about the Fire Department requirement for fire suppression if that is common. The Applicant stated it is, certainly under the hoods and the rest of the building too.

Commissioner Murphy asked about walkability and what the plan is for sidewalks at this location, noting the "missed opportunity" discussion regarding Hungry Howie's. Chair Fox replied at the time of development, it was a deliberate choice to not have sidewalks along that portion of the roadway as it would limit the screening, landscaping and the location of the utility boxes.

The Planning Commission discussed sidewalks in this area.

Commissioner Mayer asked if the occupants wanted greater visibility for their store, could they maintain the area around the pond? The Applicant stated they are interested in that option. Director Langer stated he is unsure; it may be an MDOT (Michigan Department of Transportation) right-of-way. The Applicant stated it could be done with a permit from MDOT. The Planning Commission agreed it is a key intersection and would benefit the businesses, if the Applicant is willing to obtain the permit, the Township would not object to the area being maintained.

Commissioner Mitchell offered the following Motion:

Move to approve Site Plan Application #22-010 a request to construct an approximate 5,880 square foot restaurant (Buffalo Wild Wings). Approval is subject to the following conditions:

1. **Waiver request on the building height, being greater than 24feet, is approved.**
2. **Waiver request to deviate from the maximum allowable façade material percentages, is approved.**
3. **Waiver request to allow two (2) parking spaces to deviate from the 10-foot parking setback, is approved.**
4. **The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated September 15, 2022, on the Construction Plan set, subject to an administrative review by the Planning staff prior to the issuance of a land use permit.**
5. **Applicant complies with any requirements of the Department of Public Works Director, Township Engineering Consultant, and Hartland Deerfield Fire Authority Fire Marshal.**
6. **Existing trees screening the Hartland Towne Square monument sign (waterfall sign) will be replaced if damaged during construction.**

Seconded by Commissioner Grissim. Motion carried unanimously.

b. Site Plan Application #22-014 Preliminary and Final Site Condominium Application for Hartland Towne Square - Hartland Ring Road Condominium Request.

Director Langer gave an overview of the location and scope of the request stating the following:

- Hartland Towne Square Planned Development (PD)
- No available splits or land divisions left for this property.
- Elected to form a condominium of four (4) units that will accommodate Buffalo Wild Wings as unit 2, another restaurant as unit 3, the waterfall sign as unit 4, and an unknown occupant as unit 1. Each occupant will own the property.
- Typically goes through a preliminary review and then a final review both going to the Township Board for the final decision.
- In this case, the Site Plan has already been reviewed.
- It is more or less a Master Deed process which the Township Attorney has already reviewed and commented on.
- The Director included the revised Master Deed and has put forth both the preliminary and final documents to conserve time and materials.
- A Motion to Recommend Approval has been attached. The Township Board will make the final decision.

Commissioner Grissim offered the following recommendation:

Move to recommend approval of the Preliminary and Final Site Condominium Application #22-014, a request to permit four (4) commercial units in the Hartland Towne Square Planned Development Planned Development. Approval is subject to the following conditions:

1. **The proposed site condominium request is subject to the approval of the Township Board.**
2. **The condominium documents shall comply with the requirements of the Township Attorney.**

Seconded by Commissioner Murphy. Motion carried unanimously.

The Planning Commission and the Applicant briefly discussed the RPT (formerly RAMCO) Development, this solution, and future possibilities.

8. <u>Call to the Public:</u>
None

9. <u>Planner Report:</u>
Director Langer stated the Site Plan Review Committee is scheduled to review Mixed Use Concept Plan for M59 and Old US 23.

10. <u>Committee Reports:</u>
Chair Fox stated Commissioner asked for a Motion to appoint Tom Murphy as Planning Commission Secretary.

Commissioner Mayer offered the following Motion:
Commissioner Tom Murphy shall be appointed Planning Commission Secretary.

Seconded by Commissioner Mitchell. Motion carried unanimously.

Commissioner Mayer asked if it is possible to have the boulevard on M59 mowed more than twice a year, Director Langer stated that right-of-way is under the jurisdiction of MDOT. It is possible the Township could contribute toward that end. He can pass a note to the Township Manger. He has no idea how the Township Board will respond. Commissioner Grissim stated in the last couple of years a committee has met with the Township Manager to attempt to clean up the at least edges of some of those areas. It is our Township identity at that location. She believes they will revisit after the construction and is hopeful for the Board's support. Commissioner Murphy agreed.

11. Adjournment:

A Motion to adjourn was made by Commissioner Mitchell and seconded by Commissioner McMullen. Motion carried unanimously. The meeting was adjourned at approximately 8:08 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan with Special Land Use Application #22-015 (Mini warehouse establishment with outdoor storage as accessory to a permitted use)

Date: November 10, 2022

Recommended Action

Move to recommend approval of Special Land Use Permit and approve Site Plan Application #22-015, a request to construct a mini warehouse establishment with outdoor storage as accessory to the permitted use, on a vacant parcel on Old US-23, in Section 28 of the Township (Tax Parcel ID #4708-28-300-023). The recommendation for approval is based on the following findings:

1. The proposed special land use, outdoor storage accessory to a permitted use (mini warehouse) meets the intent and purposes of the Ordinance as well as the specific standards outlined in Section 6.6 (Special Uses).

2. The proposed special land use is permitted in the LI (Light Industrial) zoning district as outlined in Section 3.1.16.D.ix, and the proposed use is compatible with the existing and future uses in the vicinity.

3. The Hartland Township Comprehensive Plan and the Future Land Use Map (FLUM) designate this property as Planned Industrial Research Industrial. The proposed special land use is compatible with the Comprehensive Plan and the FLUM.

4. The site is adequately served by existing essential facilities and public services and the Fire Department has no objection. The proposed use will be served by a public road with direct access to Old US-23.

5. The proposed use will not create additional requirements at public cost for public facilities as the proposed site will be served by private well (water) and sanitary sewer.

Approval is subject to the following conditions:

1. The proposed special land use, outdoor storage accessory to a permitted use, is subject to approval by the Township Board.

2. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated November 10, 2022, on the Construction Plan set, subject to an administrative review by the Planning staff prior to the issuance of a land use permit.

3. A land use permit is required after approval of the Site Plan and Special Use Permit and prior to construction.

4. Applicant complies with any requirements of the Department of Public Works Director, Township Engineering Consultant (SDA), Hartland Deerfield Fire Authority, and all other government agencies, as applicable.

5. (Any other conditions the Planning Commission deems necessary).

Discussion

Applicant: Jerrad Beauchamp

Site Description
The subject property is located on the east side of Old US-23, north of Bergin Road, with frontage along Old US-23 and US-23. The undeveloped site, approximately 11.9 acres in area, is zoned LI (Light Industrial). (Tax Parcel ID #4708-28-300-023). The property has approximately 740 lineal feet along Old US-23 and approximately 736 lineal feet along US-23.

A mix of deciduous and evergreen trees are found in the center and northern area of the site along with open fields. Three (3) wetland areas are found on the site, as noted on the Existing Conditions and Removals page (Sheet 2.0). The wetland boundaries are based on the delineation completed by ASTI Environmental and provided by the applicant. Per the Wetland Delineation and Jurisdictional Assessment Report completed by ASTI, dated July 12, 2021, Wetland A is likely to be regulated by the Michigan Department of Environment, Great Lakes and Energy (EGLE), which is located in the southeast corner of the site. Wetlands B and C are not likely to be regulated by EGLE, per the Assessment Report.

Adjacent properties to the north (1480 Old US-23) and south (1200 Old US-23) are zoned LI (Light Industrial). On the west side of Old US-23 and across from the subject site, the property at 1285 Old US-23 is zoned CA (Conservation Agricultural) and is occupied by a single-family home. To the north of that parcel, the property is zoned LI (Light Industrial), at 1461 Old US-23. Historically a boat repair business has occupied this property.

The Future Land Use Map (FLUM) designates the subject site and adjacent properties to the north, south, west as Planned Industrial/Research and Development.

Background Information
The site is undeveloped and additional site history was not found.

Proposed Use
The applicant is requesting to construct a mini warehouse facility that includes an area for outdoor storage, which is considered a special land use. The plans show the following storage options:

- 7 mini warehouse buildings without climate control, accessed on the outside via garage doors (typical drive-up storage units).
- 1 climate-controlled building with storage units within the building. Additional drive-up storage units are along the east and north sides of the building and are not climate controlled. This building also has a small office for a manager.
- 3 carports for RV storage/other vehicles or boats, open air and covered with a canopy (labeled as Storage Canopy on the plans). A screen wall is shown on the end of each canopy where facing Old US-23 or US-23.
- 1 unroofed, outdoor storage area, which shows gravel surfacing, The applicant indicated to the Site Plan Review Committee that he will use asphalt millings in place of the gravel.

A mini warehouse establishment is considered a Principal Permitted use in LI, per Section 3.1.16.B. xiii. Outdoor storage accessory to a permitted use is considered a special land use in the LI (Light Industrial) zoning district. Additional standards for this special land use are provided in Section 3.27 of the Zoning

Ordinance (Outdoor Storage in the LI and I Districts). Section 4.35 (Mini Warehouses) provides standards for mini warehouse establishments.

The proposed project also requires site plan approval thus there are two application elements: special land use and site plan approval for a mini warehouse establishment with outdoor storage accessory to the permitted land use. Although there are technically two elements, all are incorporated into one combined site plan which will be reviewed and approved concurrently.

Per the Hartland Township Zoning Ordinance and the State Enabling Act, a public hearing is required for the special land use application. Given the requirements for publishing a notice for the special land use, the public hearing has been scheduled for the November 17, 2022, Planning Commission meeting.

Request and Project Summary

The applicant is requesting site plan with special land use approval to construct a mini warehouse establishment with an area dedicated for outdoor storage, as accessory to the permitted use.

The proposed mini warehouse facility includes seven (7) drive-up mini warehouse buildings; one (1) climate-controlled storage building with a small office area and drive-up storage units on the north and east; 3 carports (Storage Canopy) offering covered storage of RV's, motor vehicles, trailers and boats, with masonry screen (end) walls shown on sides facing US-23 or Old US-23; and one (1) unroofed, outdoor storage area, with gravel surfacing. The gravel outdoor storage area is approximately 139 feet by 326 feet, or 45,314 square feet. This area is intended to store motor vehicles, boats, trailers, etc. The applicant has offered to use asphalt millings in place of the gravel surfacing.

Following is a summary of the mini warehouse buildings and storage canopies (dimensions and square footage).

Building	**Dimensions**	**Sq. Ft.**
Building 1	30' x 186'	5,580 SF
Building 2	30' x 181'	5,430 SF
Building 3*	86' x 166'	14,276 SF
Building 4	30' x 326'	9,780 SF
Building 5	30' x 326'	9,780 SF
Building 6	30' x 326'	9,780 SF
Building 7	30' x 302'	9,090 SF
Building 8	30' x 240'	7,260 SF
Total SF for 8 Bldgs.		**70,946 SF**
Storage Canopy 1	84' x 207'	17,388 SF
Storage Canopy 2	84' x 316'	26,544 SF
Storage Canopy 3	84' x 191'	16,044 SF
Total SF for 3 Storage canopies		**59,976 SF**
Total SF all buildings		**130,992 SF**

**Building 3 is the climate-controlled building with office space and storage units on north & east sides (units not climate-controlled).*

The combined square footage of the eight (8) mini warehouse buildings is approximately 70,946 square feet. The three (3) carports equate to 59,976 square feet, bringing the total to approximately 130,992 square feet. The plan states the building coverage is 130,992 square feet.

As an overall guide to the design of the mini warehouse buildings, the end wall of each warehouse building, where facing Old US-23 or US-23, is constructed with split-faced block at the base (beige color) and topped with C-Brick in 2 colors (grey and brown), with a smooth face finish. C-Brick is a half-high concrete masonry unit that serves as a structural system and exterior finish. The cornice at the top is comprised of a grey tone cement board product.

Steel garage doors for the drive-up storage units are on the north and south sides of each warehouse building, for Buildings 1, 2, 4, 5, 6, and 7. Building 3 has drive-up storage units with garage doors on the north and east sides which are not climate-controlled. The remainder of Building 3 is climate-controlled with entry through several man-doors. Building 8 has garage doors on the north side. The south elevation is faced with ribbed metal panels in a sandstone color. All garage doors are a barn red color.

Where the end wall of the warehouse building is facing into the site, there are steel garage doors (1 to 3 doors), and ribbed metal panels make up the rest of the elevation. For instance, if the end wall has one (1) garage door, the remaining portion of that wall is ribbed metal panels in a sandstone color. This is the design for warehouse buildings 1, 2, 4, 5, and 6. Buildings 7 and 8 have masonry walls on both ends of the building (east and west elevations).

Each Storage Canopy (carport) has a masonry wall (free-standing) on the end facing either Old US-23 or US-23. The free-standing canopy structure is on the other side of the wall. The wall is intended to screen the canopy structure from view from the street. The north and south sides are open for vehicular access. The fourth side is also open (no screen wall). The applicant has submitted photographs of canopy structures as examples, however specific product information is not provided (manufacturer, materials, dimensions, etc.). Height information on the screen wall and canopy structure is explained in an attachment (PVA Response letter to the Township dated November 3, 2022). Per that document the height of the masonry screen wall is 18’-2” and the height of the canopy structure is 16’-11”.

Access to the site is from Old US-23 via a boulevard entrance. Four (4) parking spaces are shown on the south side of Storage Building #3, adjacent to the office. Asphalt pavement is shown for the maneuvering lanes within the site however curbing is not provided. Per Section 5.8.5.E. (Off-Street Parking Requirements), curbing is required for a parking area, with a minimum height of six (6) inches. The applicant indicated to the Site Plan Review Committee that he would consider using a rolled curb. The drive aisle between the storage buildings is typically twenty-five (25) feet, and thirty-five (35) feet between the storage areas with canopies (carports). The perimeter drive aisles around the buildings range in width from thirty (30) feet to thirty-three (33) feet.

Two (2) detention ponds are shown, one on the south by the regulated wetland (Wetland A) and a second detention pond along the eastern side of the site.

The site is enclosed with a masonry pillar and black fencing system, six (6) feet in height, along the east and west sides of the site. Black vinyl coated chain link fencing, six (6) feet in height, is shown along the north property line and along the leading edge of the paved area on the south.

Approval Procedure
The proposed special land use, outdoor storage accessory to a principal permitted use, requires approval from the Township Board. The Planning Commission will review the special land use and make a recommendation to the Township Board.

The project also requires the site plan to be reviewed by the Planning Commission who will make a final decision on the site plan. The plans will be reviewed using the development standards of the LI (Light Industrial) zoning district (Section 3.1.16.), standards associated with mini warehouses (Section 4.35), and all applicable zoning standards in the Zoning Ordinance. Section 4.38 (Open Air Business, Commercial Outdoor Display, Sales or Storage) speaks to those uses listed however it seems to be applicable to commercial businesses that have outdoor sales and display areas for products offered at that business. In this case, the site is for the storage of personal items which are not intended to be for sale or be displayed. As a result, the standards from Section 4.38 are not discussed for this request. Should the Planning Commission determine Section 4.38 is applicable, those standards could be reviewed.

SPECIAL LAND USE REVIEW – General Standards
In accordance with Section 6.6, Special Uses, of the Hartland Township Zoning Ordinance, the following standards shall serve the Planning Commission and Township Board as the basis for decisions involving such uses. The standards are provided below, and the applicant has submitted a letter, as a separate attachment, which addresses the special use criteria.

A. Be harmonious and in accordance with the objectives, intent, and purposes of this Ordinance.
B. Be compatible with the natural environment and existing and future land uses in the vicinity.
C. Be compatible with the Hartland Township Comprehensive Plan.
D. Be served adequately by essential facilities and public services, such as highways, streets, police and fire protection, drainage ways and structures, refuse disposal, or that the persons or agencies responsible for the establishment of the proposed use shall be able to adequately provide any such service.
E. Not be detrimental, hazardous, or disturbing to the existing or future neighboring uses, person, property, or the public welfare.
F. Not create additional requirements at public cost for public facilities and services that will be detrimental to the economic welfare of the community.

The Planning Department believes the proposed use can and will meet the criteria listed above for the special land use request. The applicant has provided responses to the special land use general standards as an attachment, in the letter dated November 9, 2022. The applicant will be responsible for all applicable approvals and permits from other agencies and departments for the proposed use.

SPECIAL LAND USE REVIEW – Applicable Site Standards
In addition to a finding by the Planning Commission and Township Board that the criteria above have been satisfied, standards outlined in Section 3.27 (Outdoor Storage in the LI & I Districts), for the special land use, will apply. The standard is listed below, followed by staff's findings.

Outdoor Storage in the LI &I Districts (Section 3.27)

1. All outdoor storage areas shall be screened from public rights-of-way and adjacent public use areas with screening in accordance with the provisions of Section 5.11 (Landscaping and Screening) and 5.20 (Walls and Fences).

   The outdoor storage area is interior to the site, on the east side, and is surrounded by a combination of storage buildings (#1, #2, and #4) and carports (all 3 storage canopies plus end walls). These

structures provide some screening on the north, south, and west sides of the outdoor storage area. The height of each storage building is 12'-2" to the tallest point. The carport end wall is 22'-2" to the tallest point. The majority of the end wall is 18'-2" high.

Canopy and evergreen trees are shown on the east side of the site (adjacent to the ROW of US-23) as well as the masonry and pillar fencing system. A similar landscape plan and fencing is provided along the west side of the site and ROW of Old US-23. The combination of the buildings, carports, and landscaping provides sufficient screening of the outdoor storage area.

SITE PLAN REVIEW – Applicable Site Standards

The applicable site standards include those standards related to the proposed use, mini warehouse with special land use of outdoor storage as outlined in Section 3.1.16 (LI-Light Industrial); Section 3.27 (Outdoor Storage in the LI & I Districts), as discussed above; Section 4.35 (Mini Warehouses) of the Zoning Ordinance; and all applicable zoning standards in the Zoning Ordinance.

Impact Assessment

An impact assessment was not provided.

Traffic Generation

A traffic impact assessment was not provided.

Dimensional Requirements (LI-Light Industrial; Section 3.1.16)

Lot Size (Sec. 3.1.16)

- Required – 40,000 sq. ft.
- Proposed – 11.90 acres (518,484 sq. ft.)
- Meets Requirement? Yes
- Comment – (none)

Frontage (Sec. 3.1.16)

- Required – Minimum lot width of 120 feet
- Proposed – 740 lineal feet along Old US-23 and approximately 736 lineal feet along US-23
- Meets Requirement? – Yes
- Comment – (none)

Building Setbacks (Sec. 3.1.16 and Sec.3.24)

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (east) Old US-23	80'	80'	Yes
Front (west) US-23	80'	86.57'	Yes
Side (north)	15'	33.18'	Yes
Side (south))	15'	142.08'	Yes

Building Height (Sec. 3.1.16)

- Required – 35 feet or 2½ stories, whichever is less
- Proposed – 22'-6" feet

- Meets Requirement? – Yes
- Comment – (none)

Lot Coverage (Sec. 3.1.16)

- Required – Principal structure: 75% max.
- Proposed – 25% (130,922 sq. ft. bldg. (total) ÷ 518,484 sq. ft.)
- Meets Requirement? – Yes
- Comment – (none)

Section 4.35 Mini Warehouses

The following regulations shall apply to Mini Warehouses:

1. Permitted Uses. Mini warehouse establishments shall provide for storage only, which must be contained within an enclosed building. No water or telephone service shall be provided. Electric service shall be limited to 10 amperes.

   Eight (8) mini warehouse buildings are shown with all storage within the buildings. Private well (water) and sanitary services will be provided for the office. Information on the electric service was not provided. Site lighting (exterior) is proposed.

2. Site Enclosure. The entire site, exclusive of access drives, shall be enclosed with a six (6) foot high masonry wall, constructed in accordance with Section 5.20, Screening. A six (6) foot chain link fence may be permitted along the property lines which do not abut residentially zoned or residentially used district.

   The subject site is bounded by Old US-23 on the west and US 23 on the east. Adjacent properties to the north and south are zoned LI (Light Industrial). Screening is provided on the east and west sides by using landscaping (trees and shrubs) and a 6-foot high fencing system (masonry post and black metal spindles). Black vinyl coated chain link fencing, six (6) feet in height, is shown along the north property line and along the leading edge of the paved area on the south. A regulated wetland (Wetland A) provides additional screening on the south. The proposed screening seems to be sufficient and meets the intent of the Ordinance.

3. Exterior Appearance. The exterior of any mini warehouse shall be of finished quality and design, compatible with the design and structures on surrounding property.

   The proposed façade materials are compatible with the design and structures on surrounding properties to the north and south.

4. Resident manager. A resident manager may be permitted on the site for the purpose of maintaining the operation of the facility in conformance with the conditions of approval.

   It is staff's understanding that the office area will be designated for the manager.

5. On-Site Circulation and Parking.
   A. All one-way driveways shall be designed with one ten (10) foot wide loading/unloading lane and one fifteen (15) foot travel lane.
   B. All two-way driveways shall be designed with one ten (10) foot wide loading/unloading lane and two twelve (12) foot travel lanes.

C. The parking lanes may be eliminated if the driveway does not serve storage units. Signs and painted lines shall be used to indicate parking and traffic direction throughout the site.

Option B is applicable in this case as the interior travel lanes are two-way. The travel lane width between two (2) warehouse buildings is twenty-five (25) feet for 2 travel lanes, running east-west. A dedicated loading/unloading lane is not shown. The Planning Commission is to determine if this is required. Per the applicant, he anticipates the facility will generate a low volume of traffic within the site and few conflicts will occur with vehicular circulation as patrons load or unload items from their storage unit, thus an additional loading/unloading lane is unnecessary.

Site Requirements

Dumpster Enclosure (Sec. 5.7)

- Required – Dumpster designed, enclosed, and screened per requirements; dumpster materials must match the building. enclosure height sufficient to screen dumpsters; minimum height is 6 feet.
- Proposed – None shown
- Meets Requirement? – NA
- Comment – (none)

Off-Street Parking (Sec. 5.8.4.H – Mini or Self-storage Warehouse)

- Required – Minimum 6 spaces plus adequate loading area at each unit
- Proposed – 3 parking spaces, 10’ X 20’ in dimension plus 1 barrier-free parking space and access aisle by office in Storage Building #3; loading area at each unit is not specified on the plan.
- Meets Requirement? – **TBD**
- Comment – Section 5.8.4.H.i. states that the Planning Commission may modify the numerical number of off-street parking spaces, based on evidence that another standard would be more reasonable, because of the level of current or future employment and/or level of current or future customer traffic. Consideration should be given toward testimony from the applicant on the number of spaces they believe would be necessary for the mini warehouse facility. Please see the applicant’s letter dated November 9, 2022. The Planning Commission to determine if four (4) parking spaces are sufficient for this facility, and if a loading area at each storage unit is required.

Barrier-Free Parking

- Required – 1 barrier-free space in a location most accessible to the building entrance, with at least 1 space van-accessible (1 barrier-free space required per 25 parking spaces)
- Proposed – 1 barrier-free space, with 5-foot wide access aisle near the entrance to the office in Storage Building #3
- Meets Requirement? – **No**
- Comment – The plans are to be revised to show an 8-foot wide van accessible access aisle adjacent to the barrier-free parking space, on the Construction Plan set.

Parking Lot / Driveway / Internal Roads Setbacks (Sec. 5.8.3.)

- Required – Off-street parking in industrial districts may only be located in a side or rear yard or non-required front yard; may not be permitted within 20’ of a single-family district, nor within 10’ of a road ROW, or 25’ from a front lot line, nor 10’ from a side or rear lot line.
- Proposed – Parking is interior to the site, approximately 192 feet from the Old US-23 ROW
- Meets Requirement? – Yes
- Comment – (none)

Loading (Sec. 5.9)

- Required – 1 loading space (10' X 50') required for up to 10,000 sq. ft. of gross floor area (for industrial use)
- Proposed – Loading space is not shown
- Meets Requirement? – Yes
- Comment – Typically this has not been required to be shown on a plan. Also, there appears to be sufficient room in the drive aisles adjacent to each warehouse building to accommodate loading/unloading activities.

Access Management and Non-Residential Driveway Standards (Sec. 5.10)

- Required – Per Sec. 5.10.5.C., the minimum access spacing between commercial driveways on a street with a posted speed limit of 50 MPH or greater is 330 feet.
- Proposed – The posted speed limit is 55 MPH on Old US-23. The spacing between the proposed driveway and the driveway to the north (1480 Old US-23) is approximately 660 feet. The spacing between the proposed driveway and the driveway to the south (1200 Old US-23) is approximately 860 feet.
- Meets Requirement? – Yes
- Comment – (none)

Landscaping and Screening (Sec. 5.11)

A. Landscaping of Divider Median (Sec. 5.11.2.A.vii.)
   - Required – Curbed, 10-ft. wide divider median; 1 canopy or evergreen tree and 6 medium shrubs for initial 25 lineal feet or portion thereof; PLUS 1 additional canopy or evergreen tree and 4 additional medium shrubs for every increment of 25 lineal feet. Trees to be spaced no farther than 60 ft. center-to center. Median is approx. 67 feet in length. EQUATES TO: 3 canopy trees and 13 medium shrubs REQUIRED
   - Proposed – curbed, 10-ft. wide median; 2 canopy trees; 18 medium shrubs; perennial plants and ornamental grasses. Monument sign shown on west end of median.
   - Meets Requirement? – Yes, a monument sign is shown, limiting the space for a 3rd canopy tree
   - Comment – In order to avoid on-going weeding issues, staff recommends elimination of the 18 shrubs and using lawn in that area of the median plus 2 canopy trees (area on the east side of the median). The proposed perennial plants and ornamental grasses can remain, if 80% coverage of plant material is achieved at the ground surface. The median should be mulched (shredded hardwood mulch) and irrigated and shown on the landscape plan. The revised landscape plan shall be submitted with the Construction Plan set.

B. Greenbelt Landscaping (Sec. 5.11.C.). Although this site has frontage on Old US-23 and US-23, historically Greenbelt calculations have been only applied to the frontage along Old US-23, for properties in this same situation.
   - Required – Within the first 30 feet of the property, 1 canopy tree for every 30 ft of lineal of frontage; PLUS 3 small deciduous ornamental trees or large deciduous or evergreen shrubs for the initial 40 ft., and 1 per 20 ft. thereafter, for 740' of frontage along Old US-23. EQUATES TO: 25 canopy trees and 38 additional ornamental trees, or large deciduous or evergreen shrubs REQUIRED
   - Proposed – 17 canopy trees; 3 ornamental trees; and 43 deciduous shrubs, within first 30 feet of frontage along Old US-23
   - Meets Requirement? – Yes, for the number of shrubs; **No** for the number of canopy trees
   - Comment – Planning Commission to determine if the proposed plan meets the intent of the Greenbelt Landscaping regulations for the number of canopy trees. Consideration could be

given to counting the 6 evergreen trees that are outside the 30-foot Greenbelt area, as counting toward the required number of trees.

C. Foundation Landscaping (Sec. 5.11.2.D.)
   - Required – Must equal 60% of the front and sides of the proposed building where facing road or adjacent to parking lot; must be 8-10 ft. in width, and consist of 1 ornamental or columnar tree, and 6 medium or 8 small shrubs for every 30 ft.
   - Proposed – Foundation landscaping is not proposed
   - Meets Requirement? – **TBD**
   - Comment – Planning Commission to determine if this requirement is applicable given the proposed use (warehouse buildings) with limited area for landscape beds, and the fact that the warehouse buildings are not adjacent to a parking lot, except for Storage Building #3.

D. Parking Lot Landscaping (Sec. 5.11.2.E.) – Only applicable for off-street parking areas with more than ten (1) parking spaces (4 parking spaces proposed).

E. Buffering or Screening (Sec. 5.11.2.G.i.) – Screening between land uses – NA as adjacent properties to the north and south are zoned LI (Light Industrial).

F. Screening of Ground Mounted Equipment (Sec. 5.11.2.G.iii.)
   - Required – Screening on three sides for utility cabinets (if 30 inches or more in height)
   - Proposed – Ground mounted equipment is not proposed. The HVAC equipment for Building #3 is housed inside the building.
   - Meets Requirement? – NA
   - Comment – (none)

G. Detention/Retention Area Landscaping (Sec. 5.11.2.H.)

Calculations for Detention Basin A (SE corner of site; 615' pond perimeter)
   - Required – Detention/retention ponds must be integrated into the overall design of the property and landscaped to provide a natural setting; 1 canopy or evergreen tree and 10 medium, 6 large shrubs or ornamental trees must be planted for every 50 ft. of pond perimeter. Pond Perimeter approx. 615 ft., EQUATES TO: 12 canopy or evergreen trees, and 120 medium shrubs, or 72 large shrubs or ornamental trees REQUIRED
   - Proposed – 12 trees (6 deciduous and 6 evergreen trees); 0 shrubs
   - Meets Requirement? – **TBD for number of shrubs**
   - Comment – Applicant has provided a note on Sheet LP-1 stating Detention Basin A is adjacent to Wetland A. Detention shrubs were not provided in lieu of existing wetland plants and scrub growth associated with the wetland area, per the applicant. Planning Commission to determine if this meets the intent of the ordinance requirements.

Calculations for Detention Basin B (East side of site; 1,047' pond perimeter)
   - Required – detention/retention ponds must be integrated into the overall design of the property and landscaped to provide a natural setting; 1 canopy or evergreen tree and 10 medium, 6 large shrubs or ornamental trees must be planted for every 50 ft. of pond perimeter. Pond Perimeter approx. 1,047 ft., EQUATES TO: 21 canopy or evergreen trees, and 210 medium shrubs, or 126 large shrubs or ornamental trees REQUIRED
   - Proposed – 21 trees (8 deciduous and 13 evergreen trees); 107 large shrubs
   - Meets Requirement? – **TBD for number of shrubs**
   - Comment – Planning Commission to determine if the proposed number of shrubs meets the intent of the ordinance requirements (deficient 19 large shrubs).

Other comments on landscaping
Some of the plant counts listed on Sheet LP-1 (Landscaping Plan) for the landscape calculations do not match the number of plant symbols shown on the landscape plan. Also, several plant name abbreviations are stated but the plant name is not listed in the Plant List (AS, TD, and VL). A revised landscape plan shall be submitted as part of the Construction Plan set.

Sidewalks and Pathways (Sec. 5.12)

- Required – The Planning Commission may require sidewalks or safety paths as a condition of site plan approval
- Existing – Sidewalk along Old US-23 is not proposed
- Meets Requirement? – **TBD**
- Comment – Planning Commission to decide if this is applicable to the subject site. Currently, there are no sidewalks along the east side of Old US-23.

Lighting (Sec. 5.13)

A. Intensity
   - Required – Max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance and at exit/entry drive; may not exceed 10 fc on site.
   - Proposed – Photometric plan indicates 0.0 to 0.1 fc along each property line. Footcandle value less than 10 fc throughout the site. Information on average footcandle values in the main parking area, at main building entrance, and exit/entry drives was not provided. Footcandle values are measured at 0 feet above ground level and required height for measurement is 5 feet above ground level.
   - Meets Requirement? – See notes below
   - Comment – For this site intensity levels at the main exit/entry drive should be provided, but intensity levels at the main parking area and main building entry do not seem relevant, as there is a limited parking area and no designated main building (Building #3 at the office entrance could be of consideration). Photometric plan to be revised to measure the footcandle values at 5 feet above ground level and lighting intensity at the main exit/entry drive on the Construction Plan set.

B. Fixture Height
   - Required – 25’ or the height of the principal building, whichever is less, measured from the ground level to the centerline of the light source
   - Proposed – Light poles stated as 15 ft. in height
   - Meets Requirement? – Yes
   - Comment – (none)

C. Fixture Type
   - Required – Details of all lighting fixtures needed including specifications for shielding, wattage, and illumination
   - Proposed – Specifications for proposed light fixtures are provided.
   - Meets Requirement? – Yes
   - Comment – (none)

Water Supply and Wastewater Disposal (Sec. 5.16)
The site is served by private well (water) and sanitary sewer.

Architecture / Building Materials (Sec. 5.24)

Architecture Comments:

- Façade Materials Calculation – façade materials must comply with the specifications for Façade Materials Group #3; percentages for each warehouse building and end wall of each storage canopy are listed on Sheet A1 and A2.

  The applicant did not provide elevation drawings and façade material calculations for every side of a warehouse building. In instances where the entire side of a building is garage doors or ribbed metal panels, staff has listed that as 100% metal even though there may also be a cornice detail along the top of the building (cement board). Where information is lacking, the percentage is listed as UK (unknown). For end walls facing interior to the site, a combination of garage doors (1 to 3 doors) and ribbed metal panels are proposed for Building 1, 2, 3, 4, 5, and 6. Elevations and façade percentages are not provided on Sheet A1 and A2.

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #01

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%
East	0.0%	0.0%	UK	0.0%	UK	UK
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	61.8	24.84%	13.98%	0.0%	0.0%	0.0%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #02

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100.0%	0.0%
East	0.0%	0.0%	UK	0.0%	UK	UK
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	61.18%	24.84%	13.98%	0.0%	0.0%	0.0%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #03

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)	Entry doors (not listed in Sec. 5.24)
North	0.0%	0.0%	UK	0.0%	100%	UK	UK
East	0.0%	0.0%	UK	UK	UK	UK	UK
South	67.40%	24.47%	0.13%	4.84%	0.0%	0.0%	3.16%
West	67.66%	22.45%	9.89%	0.0%	0.0%	0.0%	0.0%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #04

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%
East*	UK	UK	UK	UK	UK	UK
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	61.18%	24.84%	13.98%	0.0%	0.0%	0.0%

*Staff assumes the information listed for Building #4 on Sheet A2 has flipped the façade material information for the east and west end walls, as the east end wall faces US-23 and would have masonry products, and the west end wall is interior to the site and may have 1-3 garage doors/ribbed metal panels.

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #05

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%
East	61.18%	24.84%	13.98%	0.0%	0.0%	0.0%
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	0.0%	0.0%	UK	0.0%	UK	UK

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #06

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%
East	61.8%	24.84%	13.98%	0.0%	0.0%	0.0%
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	0.0%	0.0%	UK	0.0%	UK	UK

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #07

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%
East	61.18%	24.84%	13-98	0.0%	0.0%	0.0%
South	0.0%	0.0%	UK	0.0%	100%	0.0%
West	61.18%	24.84%	13.98%	0.0%	0.0%	0.0%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Building #08

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)	Glass (50% max.)	Metal Garage Doors (not listed in Sec. 5.24)	Exposed Concrete (not listed in Sec 5.24)	Ribbed Metal Panels (50% max.)
North	0.0%	0.0%	UK	0.0%	100%	0.0%	0.0%
East	46.34%	20.94%	11.78%	0.0%	0.0%	20.94%	0.0%
South	0.0%	0.0%	UK	0.0%	0.0%	0.0%	100%
West	46.34%	20.94%	11.78%	0.0%	0.0%	20.94%	0.0%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Canopy #01

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)
West	76.19%	17.59%	6.22%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Canopy #02

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)
East	76.19%	17.59%	6.22%

Materials Group #3: Proposed Façade Materials by Percentage by Elevation – Canopy #03

Elevation	C-Brick (not listed in Sec. 5.24)	Split-faced Block (75% max.)	Molded cornices (15% max.)
West	76.19%	17.59%	6.22%

- Colors: Earthtone colors are proposed for all products in tones of grey, beige, and brown. Barn red garage doors are proposed.
- General product information for each façade material is stated on the building elevations, however specific product information on each façade material should be submitted (product name, manufacturer name, and specific color name) or stated on the Construction Plan set.
- Materials: Façade material percentages for split-faced block, molded cornices, and glass comply with the Ordinance. Percentages are listed by elevation as indicated by the table; however additional information is required for remaining elevations where percentages and drawings were not provided, to be submitted with the Construction Plan set.
- Meets Requirement? – C-Brick is not listed as a Facade Material option. Per the applicant the block size is 4" tall by 16" in length and has a smooth-faced finish.
- Comment – Planning Commission to determine if C-Brick is an acceptable product for a façade material.

Other Requirements-Zoning Ordinance Standards/Comments
No comments at this time.

Hartland Township DPW Review
A review letter is provided from the Hartland Township DPW Director, dated November 8, 2022.

Hartland Township Engineer's Review (SDA)
The Township Engineer (SDA) has reviewed the plans and recommends approval subject to items being addressed in the letter dated November 7, 2022.

Hartland Deerfield Fire Authority Review
The Hartland Deerfield Fire Authority has reviewed the plans and provided comments in the letter dated November 3, 2022. Approval is subject to the contingencies being addressed as outlined in the letter.

Attachments:
1. Hartland Township DPW review letter, dated 11.08.2022 – *PDF version only*
2. Township Engineer (SDA) review letter dated 11.07.2022 – *PDF version only*
3. Hartland Deerfield Fire Authority review letter, dated 11.03.2022 – *PDF version only*
4. ASTI Wetland Delineation Report dated 07.12.2021 – *PDF version only*
5. Applicant's summary dated 11.09.2022– *PDF version only*
6. PVA response letter to Township 11.03.2022 – *PDF version only*
7. Section 3.1.16 LI (Light Industrial) Regulations – *PDF version only*
8. Section 3.27 (Outdoor Storage in the LI and I Districts) – *PDF version only*
9. Section 4.35 (Mini Warehouses) – *PDF version only*
10. Example Drawings Premium CC building – *PDF version only*
11. Example Drawings Premium NCC Building – *PDF version only*
12. Example of Carport Structure 1 – *PDF version only*
13. Example of Carport Structure 2 – *PDF version only*
14. Example of Carport Structure 3 – *PDF version only*
15. Example of Carport Structure 4 – *PDF version only*
16. Light Fixtures – *PDF version only*
17. Warehouse Building Plans with Units – *PDF version only*
18. Site Plans dated 10.18.2022

CC:
SDA, Twp Engineer (via email)
M. Luce, Twp DPW Director (via email)
A. Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2022 Planning Commission Activity\Site Plan Applications\SUP #22-015 Mini Storage Old US 23\Staff reports\Planning Commission\SUP #22-015 PC staff report 11.10.2022.docx

DEPARTMENT OF PUBLIC WORKS

Michael Luce, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO:	Planning Department
DATE:	11/08/2022
DEVELOPMENT NAME:	Mini Storage
PIN#:	4708-28-300-023
APPLICATION #:	SUP 22-015
REVIEW TYPE:	Site Plan

The Department of Public Works (DPW) has reviewed the site plans for the proposed Mini Storage facility and has determined that it will require .15 REU's for the development. As the only portion of the building that will have sewer is the office and it is quite small.

	Sewer REUs	Water REUs
Owned	0	0
Required	.15	0
# REUs Needed	.15	0
Cost Each	$9,439.20	$5,816.01
Total Due Each	$1,415.88	
TOTAL REU COST	**$1,415.88**	

Public Works approves the above plans subject to applicant securing the required number of REUs and the inclusion of the following details on the site plans and construction plans:

1. All review is subject to approval and must comply the Livingston County Drain Commission standards.

2. All Utility easements noted as public as well as a monitoring manhole if so, required by the Livingston County Drain Commission

3. Notes to indicate that all existing utility infrastructure within the development envelope will be required to be upgraded to the current design and engineering standards.

Prior to interior construction, applicant will be required to purchase a 2" water meter from the Township. Please contact the Public Works Department (810-632-7498) to purchase the water meter.

Please feel free to contact me with any further questions or comments regarding this matter, and thank you for your time.

Michael Luce
Public Works Director

November 7, 2022

Troy Langer
Planning Director
Hartland Township, MI

Re: Old US 23 Mini – Storage – First Site Plan Review
SDA Review No. HL22-117

Dear Troy:

We have received the preliminary site plan submittal for the above referenced project prepared by Livingston Engineering dated October 18, 2022 and were received by our office on November 1, 2022. The plans were reviewed in accordance with Hartland Township Engineering Standards and the following comments are our observations.

A. General

The site is located along the east side of Old US Hwy. 23, south of E highland Road (M-59). It is measured as 11.90 acres total area. The site is currently vacant. The proposed development includes a proposed self-storage warehouse (Mini - Storage).

1. At this time no certified boundary survey was submitted. Provide a recent boundary survey indicating all existing topography consisting of existing grades to a minimum of 100' beyond the site's property (if available).
    a. Include all existing (recorded) easement for utilities and/or right-of-way.
2. The existing site is located within wetlands areas. The current plans indicate that these areas will be impacted and disturbed. An EGLE Permit or a letter of "No Authority" will be required for any proposed work within these areas.
3. Proposed work limits extend within the Old US Hwy. 23 and US Hwy. 23 ROW. A permit from the Livingston County Road Commission for all work within the County ROW and an MDOT permit for all work within the MDOT ROW will be required prior to any construction.

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. On site pavement, water main, sanitary sewer and storm sewer and quantities must be shown on the plans.
2. Hartland Township Standard Detail Sheets are to be attached to the proposed plans when applicable.

B. Water Main

The plans do not show any existing water main. Township records show an existing 12" diameter water main located along and crossing Old US Hwy. 23, north of the neighbor property (1480 Old US Hwy. 23). The plans show a 2" water service connecting to a proposed well.

Based on this water main layout, we have the following comments:

1. Provide indication of the proposed system of water supply by a method approved by the Livingston County Health Department or other applicable authorities.
2. Well shall be installed according to Livingston County Health Department Standards and permit provisions.
3. The Hartland Fire Marshall shall review and approve the hydrant coverage for the site.

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. When connecting to an existing water main, a tapping sleeve, gate valve and well will be required unless connection to the existing main can be made without interrupting service of the main.
2. Add a notation of the proposed water service size.

C. Storm Drainage/Grading

Storm water runoff is to be captured via catch basins along the proposed buildings and drain to two detention ponds, located on the east and southeast of the site. The two are connected by a storm pipe.

An outlet structure is being provided to outlet into wetland A at the south east corner of the site. Coordination with Livingston County and EGLE will be needed to confirm this outlet as acceptable.

1. Offsite surface runoff shall not be trapped along the development perimeter. If the existing runoff from adjacent properties pass onto the proposed site, the proposed storm sewer system must be sized to accommodate.
2. On-site drainage must be captured within the proposed development via the storm sewer network and will not be allowed to drain to adjacent properties.
3. Confirm that Livingston County Drain Commission and EGLE will not require any additional water quality requirements before draining into the existing wetland A.
4. All storm water design calculations are to follow Hartland Township and Livingston County Drain Commissioner standards and details.

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. Storm sewer layouts and profiles must be included on the plans.
2. Provide finish grades of the building corners and sidewalks.
3. Curb will be required along wetland A and proposed retaining wall. Top of curb grades shall be shown on the grading plan.

D. Paving

The site is accessed by a driveway off Old US Hwy 23. The proposed plans include 6 parking spaces, 8 storage buildings, 3 storage canopy shelters, and a gravel outdoor storage area. No sidewalks along Old US Hwy 23 is proposed as part of this development.

At this time no sufficient information was provided to determine whether a fire truck will have proper circulation around the proposed site layout.

1. Provide a circulation layout demonstrating turning movements around the proposed buildings. It shall be reviewed and approved by the Hartland Fire Marshall.

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. Provide the location of all solid waste storage areas and pick-up points.
2. Identify all proposed curb on the plans.

E. Sanitary Sewer

The plans show an existing 8" sanitary sewer along the west side of Old US Hwy 23 and an existing 6" sanitary lead on the west south side of the site. The proposed 6" sanitary lead connects to existing sanitary lead.

1. The existing sanitary lead shall be televised and reviewed by the Township Engineer to make sure it is in good working condition. If found to be defective, the Township may require that the existing lead be removed and built new or CIPP lined.

All sanitary sewer design requirements are to follow current Livingston County Drain Commissioner's (LCDC) standards and details. LCDC sanitary sewer detail sheets shall be attached to the proposed plans when applicable.

Permits Required

Based on those improvements depicted on the plans, the following permits may be required and will need to be provided to the Township once available. Any changes to the approved site plan from the following agencies that impact the design may require reapproval.

Hartland Township:

1. A Land Use Permit will be granted after the pre-construction meeting.

2. Storm Water Agreement (for the storm water improvements on the site).

Livingston County:

1. Copy of Livingston County Drain Commissioner approval and permit.

2. Copy of a Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.

3. Copy of Livingston County Road Commission approval and permit for work in the Old US Highway 23 Road right-of-way.

Michigan Department of Transportation (MDOT):

1. Copy of Michigan Department of Transportation approval and/or permit for work in the US Highway 23 Road right-of-way.

Michigan Department of Environment, Great Lakes, and Energy (EGLE):

1. NPDES Notice of Coverage Documentation.

2. MDEGLE Permit for all proposed work within the state-regulated wetlands, if applicable.

Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information including comments from other agencies.

RECOMMENDATION
We recommend approval of the Final Site Plan, conditional upon all of the above comments being addressed to the satisfaction of the Planning Commission. Final engineering approval is not recommended at this time. Before final engineering can be granted, the final alignments of all proposed water main, sanitary sewer, and storm sewer must be approved by the Township along with any necessary easements.

The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Hartland Township Engineering Design Standards and 2008 Hartland Township Standard Details. Sanitary sewer and water benefit fees may be applicable for this project.

If you have any questions regarding this matter, please contact our office at your convenience.

Sincerely,

SPALDING DEDECKER

Adam Chludzinski
Project Engineer

cc: Jeremy Schrot, Hartland Township Engineer (via email)

HARTLAND DEERFIELD FIRE AUTHORITY

HARTLAND AREA FIRE DEPT.

3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
E-Mail: firemarshal@hartlandareafire.com

November 3, 2022

To: Hartland Township Planning Commission
c/o: Zoning Department

Re: Old US-23 Mini-Storage

This review and the following comments are upon the Old US-23 Mini-Storage Preliminary Site Plan, dated July 25, 2022.

1. Development to maintain minimum fifty foot (50') turning radiuses throughout the internal road system.
2. Request the development to install a siren activated entry gate for emergency vehicles.
3. Development to provide Supra Brand Rapid Entry Key Box placement attached to the office building containing keys of each locked storage building (fire department to provide order form).

Jon Dehanke
Captain

ASTI ENVIRONMENTAL

Investigation • Remediation
Compliance • Incentives

10448Citation Drive, Suite 100
Brighton, MI 48116

Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160

800 395-ASTI
Fax: 810.225.3800

www.asti-env.com

Sent Via Email Only

July 12, 2021

Mr. Jerrad Beauchamp
Beauchamp Water Treatment Solutions
872 N. Old US-23
Brighton, MI 48114

RE: Wetland Delineation and Jurisdictional Assessment with GPS Survey
Old US-23 Property (Sidwell No. 08-28-300-023)
Hartland Township, Livingston County, Michigan
ASTI File 11953

Dear Mr. Beauchamp:

A site inspection was completed on July 7, 2021 by ASTI Environmental (ASTI) to delineate wetland boundaries on the above referenced property located along Old US-23, south of M-59, and north of Bergin Road in Hartland Township, Livingston County, Michigan (Property). One wetland likely regulated by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and two wetlands not likely regulated by EGLE were found on the Property (Figure 1 – *GPS Surveyed Wetland Boundaries*). Wetland boundaries, as depicted on Figure 1, were located using a professional grade, sub-meter, hand-held Global Positioning System unit (GPS).

SUPPORTING DATA

The United States Geological Survey (USGS) Kent Lake, Michigan 7.5' Quadrangle Map, the USDA Web Soil Survey (WSS), the National Wetland Inventory Map (NWI), the EGLE Wetlands Map Viewer web site, and digital aerial photographs were all used to support the wetland delineation and subsequent regulatory status determination. All reviewed data indicated the presence of wetland in the western and southeastern portion of the Property.

The WSS indicates the Property is comprised of the soil map units of Boyer-Oshtemo loamy sands (0-2% slopes), Wawasee loam (2-6% slopes), Wawasee loam (6-12% slopes), and Pewamo clay loam. According to the WSS, Pewamo clay loam is listed as a hydric soil.

FINDINGS

ASTI inspected the Property for the presence of lakes, ponds, wetlands, and watercourses. This work is based on MCL 324 Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection. The delineation protocol used by ASTI for this delineation is based on the US Army Corps of Engineers' *Wetland Delineation Manual,* 1987, the *Regional Supplement to the Corps of Engineer Wetland Delineation Manual: Northcentral/Northeast Region*, and related guidance/documents, as appropriate. Wetland vegetation, hydrology, and soils were used to locate the wetland boundaries.

Three wetlands were found on the Property.

Wetland A

Wetland A is an emergent wetland 0.23 acres in size on the Property. Wetland A continues off-site to the south. Vegetation within Wetland A was dominated by three square rush (*Schoenoplectus pungens*), reed canary grass (*Phalaris arundinacea*), fox sedge (*Carex vulpinodea),* redtop (*Agrostis gigantea*), and water horehound (*Lycopus americanus*). Soils within Wetland A were comprised of clayey and sandy loams and are considered hydric because the criteria for a depleted matrix, depleted below dark surface, and a redox dark surface were met. Indicators of wetland hydrology observed within Wetland A included oxidized rhizospheres on living roots.

Dominant vegetation within the upland adjacent to Wetland A included Kentucky blue grass (*Poa pratensis*), late goldenrod (*Solidago altissima*), reed canary grass, and Timothy (*Phleum pratense*). Soils in the adjacent upland were comprised of clayey loams; no indicators of wetland hydrology were observed.

It is ASTI's opinion that Wetland A is regulated by EGLE under Part 303 and because it is a portion of a larger wetland complex located to the south that is greater than five acres in size.

Wetland B

Wetland B is an emergent wetland 0.50 acres in size. Vegetation within Wetland B was dominated by reed canary grass and poison ivy (*Toxicodendron radicans*). Soils within Wetland B were comprised of clayey loams and are considered hydric because

the criteria for a redox dark surface weremet. Indicators of wetland hydrology observed within Wetland B included oxidized rhizospheres on living roots, surface water, sparsely vegetated concave surfaces, and soil saturation.

Dominant vegetation within the upland adjacent to Wetland B included Kentucky blue grass, late goldenrod, and reed canary grass. Soils in the adjacent upland were comprised of sandy and clayey loams; no indicators of wetland hydrology were observed.

It is ASTI's opinion that Wetland B is not regulated by EGLE under Part 303 because it is less than five acres in size and is not within 500 feet on an inland lake or stream as defined under Part 301.

Wetland C

Wetland C is an emergent wetland 0.13 acres in size. Vegetation within Wetland C was dominated by reed canary grass and cattail (*Typha angustifolia*). Soils within Wetland C were comprised of clayey loams and are considered hydric because the criteria for a redox dark surface were met. Indicators of wetland hydrology observed within Wetland C included oxidized rhizospheres on living roots.

Dominant vegetation within the upland adjacent to Wetland C included Kentucky blue grass, Canada thistle (*Cirsium arvense*), smooth brome (*Bromus inermis*), reed canary grass, and late goldenrod. Soils in the adjacent upland were comprised of sandy loams; no indicators of wetland hydrology were observed.

It is ASTI's opinion that Wetland C is not regulated by EGLE under Part 303 because it is less than five acres in size and is not within 500 feet on an inland lake or stream as defined under Part 301.

On-Site Flagging

Wetland boundaries were marked in the field with day-glo pink and black striped flagging, located with GPS, and numbered as follows:

Wetland A = A-1 through A-14 Wetland B = B-1 through B-19
Wetland C = C-1 through C-6

SUMMARY

Based upon the data, criteria, and evidence noted above, it is ASTI's professional opinion the Property includes one wetland (Wetland A) regulated by EGLE and two wetlands (Wetlands B and C) not regulated by EGLE. However, EGLE has the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan.

Attached are Figure 1, which shows the locations of GPS located wetland boundaries on the Property and completed US Army Corps of Engineers (ACOE) Wetland Data Forms.

Thank you for the opportunity to assist you with this project. Please let us know if we can be of any further assistance in moving your project forward.

Respectfully submitted,

ASTI ENVIRONMENTAL

Kyle Hottinger
Wetland Ecologist
Professional Wetland Scientist #2927

Dianne C. Martin
Vice President
Professional Wetland Scientist #1313

Attachments: Figure 1 – GPS-Surveyed Wetland Boundaries
Completed ACOE Wetland Data Forms

Old US-23 Property

Old US-23 (Sidwell No. 708-28-300-013),
Hartland Twp., Livingston Co., MI

0 50 100 200 Feet

N

ASTI Environmental

Client: Beauchamp Water Treatment Solutions
Created by: RMH, July 9, 2021, ASTI Project 11953
Imagery: Livingston County IT GIS

Figure 1 - GPS-Surveyed Wetland Boundaries

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: UP1

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 2-4

Subregion (LRR or MLRA): LRR L Lat: 42.623055 Long: -83.749356 Datum: NAD83

Soil Map Unit Name: Wawasse loam (2-6% slopes) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland adjacent to Wetland A

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UP1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Malus domestica*	5	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Elaeagnus umbellata*	5	Yes	UPL
2. *Fraxinus pennsylvanica*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phleum pratense*	20	Yes	FACU
2. *Poa pratensis*	20	Yes	FACU
3. *Bellis perennis*	10	No	UPL
4. *Juncus tenuis*	10	No	FAC
5. *Solidago altissima*	20	Yes	FACU
6. *Phalaris arundinacea*	20	Yes	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.6% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	10	x 3 =	30
FACU species	60	x 4 =	240
UPL species	20	x 5 =	100
Column Totals:	115 (A)		420 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: UP2

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-3

Subregion (LRR or MLRA): LRR L Lat: 42.623027 Long: -83.75143 Datum: NAD83

Soil Map Unit Name: Boyer-Oshtemo loamy sands (0-2% slopes) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions in dry swale in west-central portion of property.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UP2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Elaeagnus umbellata*	5	Yes	UPL
2. *Populus deltoides*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Melilotus altissimus*	10	No	UPL
2. *Poa pratensis*	25	Yes	FACU
3. *Agrostis gigantea*	10	No	FACW
4. *Bellis perennis*	5	No	UPL
5. *Solidago altissima*	25	Yes	FACU
6. *Centaurea stoebe*	15	Yes	UPL
7. *Achillea millefolium*	10	No	FACU
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	60	x 4 =	240
UPL species	35	x 5 =	175
Column Totals:	115 (A)		465 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Sandy	
8-18	10YR 6/2	80	10YR 4/4	15	C	M	Loamy/Clayey	Distinct redox concentrations
	10YR 4/3	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: UP3

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 3-5

Subregion (LRR or MLRA): LRR L Lat: 42.624234 Long: -83.750666 Datum: NAD83

Soil Map Unit Name: Boyer-Oshtemo loamy sands (0-2% slopes) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions adjacent to Wetland B

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UP3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus sylvestris*	40	Yes	UPL
2. *Quercus rubra*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Elaeagnus umbellata*	30	Yes	UPL
2. *Cornus racemosa*	10	Yes	FAC
3. *Fraxinus pennsylvanica*	10	Yes	FACW
4.			
5.			
6.			
7.			
	50	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Toxicodendron radicans*	20	Yes	FAC
2. *Achillea millefolium*	10	No	FACU
3. *Solidago altissima*	40	Yes	FACU
4. *Daucus carota*	5	No	UPL
5. *Poa pratensis*	20	Yes	FACU
6. *Centaurea stoebe*	5	No	UPL
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	80	x 4 =	320
UPL species	80	x 5 =	400
Column Totals:	200 (A)		830 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Sandy	
8-18	10YR 6/2	90					Loamy/Clayey	
	10YR 4/3	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: UP4

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 2-3

Subregion (LRR or MLRA): LRR L Lat: 42.624007 Long: -83.751501 Datum: NAD83

Soil Map Unit Name: Boyer-Oshtemo loamy sands (0-2% slopes) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions adjacent to Wetland C

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UP4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	5	Yes	FAC
2. *Quercus rubra*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer negundo*	5	Yes	FAC
2. *Lonicera tatarica*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	30	Yes	UPL
2. *Solidago altissima*	20	Yes	FACU
3. *Cirsium arvense*	20	Yes	FACU
4. *Poa pratensis*	10	No	FACU
5. *Phalaris arundinacea*	20	Yes	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species	60	x 4 =	240
UPL species	30	x 5 =	150
Column Totals:	120 (A)		460 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point UP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Sandy	
10-18	10YR 6/2	80					Sandy	
	10YR 4/3	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: WT1

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 1-3

Subregion (LRR or MLRA): LRR L Lat: 42.623038 Long: -83.749481 Datum: NAD83

Soil Map Unit Name: Wawasse loam (2-6% slopes) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland A

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland A - emergent wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- x Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WT1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus racemosa*	10	Yes	FAC
2. *Salix interior*	5	No	FACW
3. *Ulmus americana*	5	No	FACW
4. *Fraxinus pennsylvanica*	20	Yes	FACW
5.			
6.			
7.			
	40 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Schoenoplectus pungens*	40	Yes	OBL
2. *Carex vulpinoidea*	20	Yes	OBL
3. *Bellis perennis*	5	No	UPL
4. *Juncus tenuis*	10	No	FAC
5. *Lycopus americanus*	10	No	OBL
6. *Phalaris arundinacea*	15	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	45	x 2 =	90
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	140 (A)		245 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WT1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	95	10YR 6/8	5	C	M	Loamy/Clayey	Prominent redox concentrations
9-18	10YR 5/1	75	10YR 6/8	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: WT2

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 1-3

Subregion (LRR or MLRA): LRR L Lat: 42.624169 Long: -83.750632 Datum: NAD83

Soil Map Unit Name: Boyer-Oshtemo loamy sands (0-2% slopes) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland B - emergent wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- x Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes x	No ____	Depth (inches): 0.1
Water Table Present?	Yes x	No ____	Depth (inches): 7
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WT2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus racemosa*	20	Yes	FAC
2. *Populus deltoides*	10	Yes	FAC
3. *Fraxinus pennsylvanica*	10	Yes	FACW
4.			
5.			
6.			
7.			
	40	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Toxicodendron radicans*	20	Yes	FAC
3. *Juncus effusus*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	75	x 2 =	150
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		310 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WT2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	75	10YR 6/8	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oold 23 Property (Sidwell No. 08-28-300-023) City/County: Hartland Twp-Livingston Sampling Date: 7-7-21

Applicant/Owner: Beauchamp Water Treatment Solutions State: MI Sampling Point: WT3

Investigator(s): ASTI-KAH Section, Township, Range: Sec 28 T3N R6E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): slope Slope %: 1-3

Subregion (LRR or MLRA): LRR L Lat: 42.623906 Long: -83.751595 Datum: NAD83

Soil Map Unit Name: Boyer-Oshtemo loamy sands (0-2% slopes) NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No _____	**within a Wetland?** **Yes** X **No** _____
Wetland Hydrology Present?	Yes X	No _____	If yes, optional Wetland Site ID: Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland C - emergent wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- x Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WT3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus pennsylvanica*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Toxicodendron radicans*	10	No	FAC
3. *Carex vulpinoidea*	5	No	OBL
4. *Typha angustifolia*	30	Yes	OBL
5. *Cirsium arvense*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	60	x 2 =	120
FAC species	10	x 3 =	30
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	110 (A)		205 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point WT3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/1	75	5YR 4/4	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
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- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
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- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Martha Wyatt

From: Martha Wyatt
Sent: Wednesday, November 9, 2022 4:19 PM
To: Martha Wyatt
Subject: Parking requirements and Special Use Criteria summary

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From: Jerrad Beauchamp
Sent: Wednesday, November 9, 2022 4:04 PM
To: Martha Wyatt <MWyatt@hartlandtwp.com>
Cc: Troy Langer <TLanger@hartlandtwp.com>
Subject: RE: Parking requirements and Special Use Criteria summary

HI Martha,

Below are a few items we discussed……

1) ***Pertaining to the required parking spots for office/customer use***-Below are items that have changed.
    a. Storage units are commonly booked through online rental contracts. Office visits are no longer the norm.
    b. Storage units are now accessed with coded locks, again all controlled online for access.
    c. Storage units have switch to these new processes because its more convenient for the customers and less payroll for the company.
    d. Storage units offices Typically is only used for Janitorial purposes.
    e. These changes have totally changed the traffic/customers usage of storage facility office to minimal visitors because its almost always done online.

    I would also propose if needed, we have several outdoor and covered parking places which we could designate employee parking.

2) **Special Land Use Review-General Standards 6.6**
    a. We feel this project does conform with the intent and purpose of the ordinance-This would be the best fit for storage units.
    b. We feel the use of storage units in this area and the surrounding business is the correct mix for storage units and will mix nicely.
    c. We feel the transition from full retail on m59 to industrial use along old 23 the storage units makes a nice transition.
    d. We feel the traffic access and also public utilities for our project fits well in this area and doesn't ad any high levels of traffic count or public services requirements such as sewer or water.
    e. We feel we do not negatively impact the neighboring uses and again this is a nice transition of a nice facility enhancing local convenience for our local community. In fact it improves better solutions for locals to storage there items in a nice facility rather than cluttering up their neighborhood driveways and houses.
    f. We will not ad to any public costs or services or economic welfare of the community.

PUCCI + VOLLMAR
ARCHITECTS, PC
ARCHITECTURE + DESIGN + PLANNING

November 3, 2022

sent via email

Martha Wyatt, Planner
Hartland Township
2655 Clark Road
Hartland, MI 48353

Dear Martha,

This letter is in response to your emailed comments regarding Beauchamp Storage, project SUP #22-015, dated November 2, 2022.

You had requested a written statement indicating the end walls of the canopy structures will completely be screened. Please refer to the following information:

Building Number	Height Of Storage Structure At Peak	Height Of Masonry Screen Wall
1	8'-10"	10'-2"
2	8'-10"	10'-2"
3	10'-3"	11'-6"
4	8'-10"	10'-2"
5	8'-10"	10'-2"
6	8'-10"	10'-2"
7	8'-10"	10'-2"
8	8'-10"	10'-2"

Canopy Number	Height Of Canopy Structure At Peak	Height Of Masonry Screen Wall
1	16'-11"	18'-2"
2	16'-11"	18'-2"
3	16'-11"	18'-2"

Sincerely,

Karl F. Vollmar, Architect

Copy: Jerrad Beauchamp, David LeClair, via copy of email

508 East Grand River Avenue, Suite 100B, Brighton, MI 48116-1566
(810) 225-2930 ~ www.pv-architects.com

3.1.16

LI Light Industrial

A. INTENT

The LI, Light Industrial District is designed so as to primarily accommodate industrial parks, wholesale activities, warehouses, and industrial operations whose external physical effects are restricted to the area of the district and in no manner detrimentally affect any of the surrounding districts. The LI District is so structured as to permit, along with any specified uses, the manufacturing, compounding, processing, packaging, assembly and/or treatment of finished or semifinished products from previously prepared material. It is further intended that the processing of raw material for shipment in bulk form, to be used in an industrial operation at another location is not to be permitted.

User Note: For uses listed in **bold blue**, refer to Article 4, or click on use, for use-specific standards

B. PRINCIPAL PERMITTED USES

i. Any use with the principal function of conducting research, design, testing and pilot or experimental product development.
ii. Vocational schools and other types of technical training facilities.
iii. Computer programming, data processing and other computer related services.
iv. Professional & medical offices
v. (Reserved)
vi. **Financial institutions with drive-through service** §4.57
vii. Publicly owned and operated facilities
viii. **Essential services, buildings and storage yards** §4.26
ix. Public or private parks and open space
x. **Outdoor seating and dining areas** §4.47
xi. Light industrial uses
xii. Business services
xiii. **Mini warehouses** §4.35
xiv. Commercial greenhouses
xv. Lumber yards and millworks, provided any mills are completely enclosed
xvi. Public buildings, post offices, libraries, libraries, community centers, including outdoor storage.
xvii. Public utility buildings, telephone exchange buildings, electrical transformer stations and substations, and gas regulator stations.

C. ACCESSORY USES

i. **Sales at a commercial greenhouse** §3.22.1
ii. **Personal fitness centers accessory to industrial use** §3.22.2
iii. **Caretaker living quarters** §4.51
iv. **Accessory buildings, uses and activities customarily incidental to any of the above-named principal permitted uses** §5.14

D. SPECIAL LAND USES

i. **Child day care and adult day care centers** §4.12
ii. **Indoor tennis facilities, fitness and recreation centers** §4.40
iii. Urgent care facilities
iv. **Motels and hotels** §4.36
v. Standard restaurants
vi. Freezer locker plants and cold storage
vii. **Heliports** §4.13
viii. **Radio, television and other communication towers** §4.39
ix. **Outdoor storage accessory to a permitted use** §3.27
x. Uses of the same nature or class as uses listed in this district as either a Permitted Principal Use or Special Use in this district, but not listed elsewhere in this Zoning Ordinance, as determined by the Planning Commission.
xi. **Automobile repair - major** §4.59

LI Light Industrial

E. DEVELOPMENT STANDARDS

Lot Size

Minimum lot area:	40,000 sq ft
Minimum lot width:	120 ft

Maximum Lot Coverage

Principal structure	75%

Setbacks

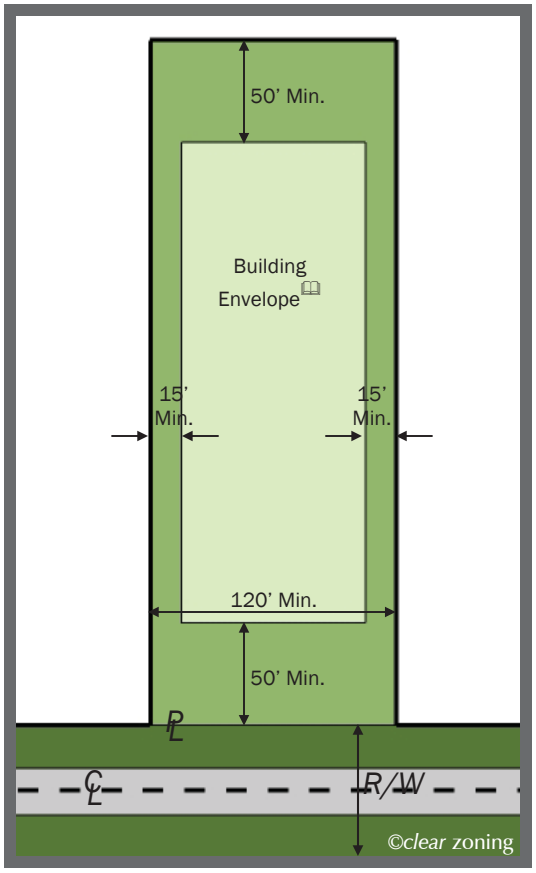
Minimum front yard setback:	50 ft
Minimum rear yard setback:	50 ft
Minimum side yard setback:	15 ft

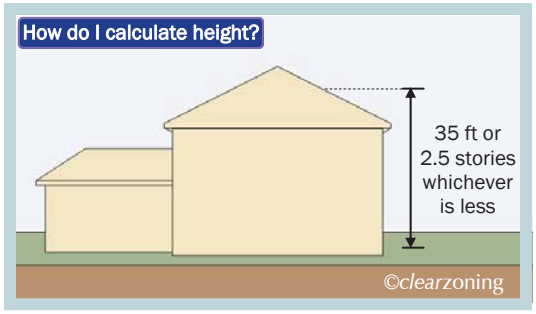
Building Height

Maximum building height:	35 ft or 2.5 stories whichever is less

NOTES

- For additions to the above requirements, refer to Section 3.24: 2, 5, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 28.
- See *Suggested References* below for applicability





The above drawings are not to scale.

SELECTED REFERENCES

3. Zoning Districts

- Planned Development §3.1.18
- Light Industrial District §3.22
- Commercial Greenhouse §3.22.1

5. Site Standards

- Paved Access §5.22.3
- Off-Street Parking and Loading Requirements §5.8
- Access Management and Driveways §5.10
- Sidewalks & Pathways §5.12
- Landscaping §5.11
- Lighting 5.13
- Walls and Fences §5.20
- Performance Standards §5.19
- Architectural Standards §5.24

6. Development Procedures

- Site Plan Review §6.1
- Traffic Impact §6.5
- Special Use Review §6.6

length of a wall's surface. The Planning Commission may waive these requirements upon a determination that the proposed building is compatible with adjacent land uses and will not have any adverse impacts on the public health, safety, and welfare.

26. Where the principal structure on a lot in the CA or the RUR District provides a greater front yard setback than required by this Ordinance, an accessory structure may be erected in the additional front yard area but not in the minimum required front yard.
27. Where a nonconforming lot was created with one or more lot line(s) contiguous with a lake, the lot line adjacent to the lake shall be considered the front lot line and the lot line opposite the front lot line shall be considered the rear lot line. Similarly, for such nonconforming lots, the yard space nearest the lake shall be considered the front yard and the yard space opposite the front yard shall be considered the rear yard.
28. Lot coverage shall not include the sidewalks and safety paths located in the right-of-way.

3.25 WATERFRONT LOT STANDARDS

In certain locations in the Township, property owners own and maintain property along a lake or other waterway. In some instances, those property owners also own land that is across the street from the lake front property and the property owner desires to construct an accessory structure on this land. A land use and building permit for an accessory structure may only be issued on this land if the following provisions are met:

a. The lot or parcel upon which the principal structure (example: single family house) is located, must be a waterfront or riparian lot and the lot on which the proposed accessory structure (example: detached garage or shed) would be located across the roadway from the principal structure and is not a waterfront or riparian lot.
b. Only one accessory structure shall be permitted on the non-waterfront/riparian lot. The accessory structure shall not exceed 800 square feet in ground floor area. A second story or loft area may be permitted, in addition to the 800 square feet, provided the accessory structure still complies, as otherwise set forth in this Ordinance, and a separate dwelling unit is not located within the accessory structure.
c. There shall be common ownership between the principal structure lot (waterfront/riparian lot), and the lot being used for an accessory structure. The property owner shall provide a recorded copy of a deed restriction/covenant that clearly indicates the properties are under common ownership and must remain under common ownership for the purposes of having an accessory structure on one of the parcels.
d. The parcel that contains the accessory structure shall not be farther than 70 feet away from the parcel that contains the principal structure.
e. The accessory structure shall maintain all required front, side, rear yard setbacks and lot coverage regulations.

3.26 FOOD AND BEVERAGE SERVICE ESTABLISHMENTS IN THE NSC DISTRICT

In the NSC, Neighborhood Service Commercial District, establishments with open front windows drive-in or drive-through service, and establishments serving alcoholic beverages shall not be permitted. Uses which provide open front window service for walk-up patrons only may be permitted.

3.27 OUTDOOR STORAGE IN THE LI & I DISTRICTS

All outdoor storage areas shall be screened from public rights-of-way and adjacent public use areas with screening in accordance with the provisions of Section 5.11 and 5.20.

4.35 MINI WAREHOUSES

The following regulations shall apply to Mini-Warehouses:

1. Permitted Use. Mini-warehouse establishments shall provide for storage only, which must be contained within an enclosed building. No water or telephone service shall be provided. Electric service shall be limited to 10 amperes.
2. Site Enclosure. The entire site, exclusive of access drives, shall be enclosed with a six (6) foot high masonry wall, constructed in accordance with Section 5.20, Screening. A six (6) foot chain link fence may be permitted along property lines which do not abut a residentially zoned or residentially used district.
3. Exterior Appearance. The exterior of any mini-warehouse shall be of finished quality and design, compatible with the design of structures on surrounding property.
4. Resident Manager. A resident manager may be permitted on the site for the purposes of maintaining the operation of the facility in conformance with the conditions of the approval.
5. On-Site Circulation and Parking.
   A. All one-way driveways shall be designed with one ten (10) foot wide loading/unloading lane and one fifteen (15) foot travel lane.
   B. All two-way driveways shall be designed with one ten (10) foot wide loading/unloading lane and two (2) twelve (12) foot travel lanes.
   C. The parking lanes may be eliminated if the driveway does not serve storage units. Signs and painted lines shall be used to indicate parking and traffic direction throughout the site.

4.36 HOTELS

The following regulations shall apply to Motels and Hotels:

1. Design. Each unit shall contain at least a bedroom and bath and a minimum gross floor area of two hundred fifty (250) square feet.
2. Parking. Off-street parking for semi-trailers shall be specifically designated and separated from passenger vehicles.

4.37 OIL AND GAS PROCESSING PLANTS

The following regulations shall apply to oil and gas processing or sweetening plants:

1. Setbacks
   A. Oil and gas processing plants shall be located a minimum of thirteen hundred (1,300) feet from any property line, wetlands, or surface water and a minimum of five hundred (500) feet from any residential zoned property.
   B. Oil and gas processing plants shall be located a minimum of two thousand six hundred and forty (2,640) feet from population concentrations, such as subdivisions, apartment buildings residential developments, or mobile home parks, and from uses whose occupants would be difficult to evacuate, such as hospitals or nursing or convalescent homes.
2. Density. There shall be no more than one (1) oil and gas processing facility in operation per square mile section of land. Such facilities shall be designed to service all oil and gas wells that are expected to need such service within a two (2) mile radius.
3. Screening. Oil and gas processing facilities shall be screened in accordance with Section 5.11, Landscaping and Screening.
4. Air Pollution Control. Emissions from the plant shall meet or exceed all applicable state and federal pollution standards. Monitors/sensors shall be installed in at least four locations along the perimeter of the site. In addition, monitors shall be installed in all process buildings. These monitors shall be set to alarm and automatically cause the plant to be shut down upon detection of excessive concentrations of hydrogen sulfide, sulfur dioxide, methane, or other gases. The plant operator shall provide the Township with the instrument shut down set points, which shall be subject to review and approval. All monitors shall be maintained in proper working order at all times. The operator also provide the Township with an emergency preparedness plan in the event a complaint requires a plant shut down, and submit an odor complaint response plan for Planning Commission approval.
5. Fire Detection. The fire detection and suppression system shall be constructed and maintained in accordance with state and local fire and building codes, and as approved by the Fire Chief. Fire eyes shall be installed in storage tank areas and in process buildings.

BETCO

MINI STORAGE

NORTH CAROLINA

SUBMITTED TO :

PHONE:

WIND LOAD DESIGN DATA:

ULTIMATE DESIGN WIND SPEED (V_{ULT}): 105 MPH
NOMINAL DESIGN WIND SPEED (V_{ASD}): 82 MPH
RISK CATEGORY: I
WIND EXPOSURE: B
INTERNAL PRESSURE COEFFICIENT: ± 0.18

SNOW LOAD DESIGN DATA:

GROUND SNOW LOAD (Pg): 15 PSF
FLAT-ROOF SNOW LOAD (Pf): 12.1 PSF
SNOW EXPOSURE FACTOR (Ce): 1.2
SNOW LOAD IMPORTANCE FACTOR (I): 0.8
THERMAL FACTOR (Ct): 1.2

EARTHQUAKE LOAD DESIGN DATA:

- RISK CATEGORY: I
- SEISMIC IMPORTANCE FACTOR (I): 1.0
- SEISMIC DESIGN CATEGORY: C
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7-10 SECTION 12.8)
- BASIC SEISMIC-FORCE-RESISTING SYSTEM: LIGHT FRAMED WALLS WITH STEEL SHEAR PANELS
- SITE CLASS: D
- DESIGN BASE SHEAR: BUILDING "1": 1.579[K]
- RESPONSE MODIFICATION FACTOR (R): 7.0
- SEISMIC RESPONSE COEFFICIENT (C_S): 0.041
- MAPPED SPECTRAL RESPONSE ACCELERATION
  (S_S): 27.0% G
  (S_1): 10.2% G
- SPECTRAL RESPONSE COEFFICIENTS
  (S_{DS}): 28.5% G
  (S_{D1}): 16.3% G

BUILDING DATA :

BUILDING DESCRIPTION :
SINGLE STORY METAL BUILDING BOLTED TO CONCRETE SLAB FOUNDATION.

BUILDING SIZE :
BUILDING "1" 70' x 110' = 7,700 sq. ft. 10'-0" EAVE HEIGHT

PARKING DATA :
SEE SITE PLAN BY OTHERS

BUILDING CODE :
THE 2018 NORTH CAROLINA BUILDING CODE

DESIGN CRITERIA :
THIS BUILDING HAS BEEN DESIGNED TO CONFORM TO THE STRUCTURAL REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE, WITH CURRENT REVISIONS.

THIS BUILDING HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADINGS IN ADDITION TO THE DEAD LOADINGS :

ROOF LIVE LOADING :	20 psf
FLOOR LIVE LOADING:	125 psf
USE GROUP:	S-1
TYPE OF CONSTRUCTION:	II-B

IT IS THE RESPONSIBILITY OF THE BUYER/OWNER TO VERIFY THE FIREWALL, LIVE LOAD AND WIND LOAD REQUIREMENTS WITH THE LOCAL CODE AUTHORITY.

PROJECT NUMBER :
NC20211

NOTE: DETAIL LABELS CONTAINED WITHIN THIS SET OF PLANS MAY REFERENCE THE ERECTION DRAWINGS MARKED IN THIS SCHEDULE.
EXAMPLE: DETAIL A/900 REFERS TO DETAIL "A" LOCATED ON ERC900X

ERECTION DRAWINGS

ERC010X		ERC200X		ERC420X		ERC619X		ERC752X	
ERC016X	X	ERC201X	X	ERC500X		ERC620X		ERC753X	
ERC100X	X	ERC202X	X	ERC505X	X	ERC621X		ERC754X	
ERC105X	X	ERC203X	X	ERC506X		ERC622X		ERC800X	
ERC106X		ERC204X		ERC515X		ERC623X		ERC900X	
ERC110X	X	ERC206X		ERC600X	X	ERC624X		ERC901X	
ERC112X	X	ERC207X		ERC601X	X	ERC625X		ERC902X	
ERC115X	X	ERC208X		ERC602X	X	ERC626X		ERC903X	
ERC120X		ERC209X		ERC603X		ERC630X		ERC904X	
ERC130X	X	ERC250X	X	ERC604X		ERC631X	X	ERC905X	
ERC150X		ERC250XFHP		ERC605X		ERC652X		ERC907X	
ERC151X		ERC251X		ERC606X		ERC700X	X	ERC908X	
ERC152X		ERC251XFHP		ERC607X		ERC710X		ERC910X	
ERC153X		ERC252X	X	ERC608X		ERC711X		ERC911X	
ERC154X		ERC251XFHP		ERC609X		ERC712X		ERC912X	
ERC155X		ERC253X		ERC610X	X	ERC713X		ERC913X	
ERC175X		ERC254X	X	ERC611X		ERC720X		ERC914X	
ERC176X		ERC255X		ERC612X		ERC725X		ERC915X	
ERC177X		ERC256X		ERC613X		ERC730X		ERC916X	
ERC178X		ERC257X		ERC614X		ERC731X		ERC917X	
ERC179X		ERC258X		ERC615X	X	ERC731XFHP		ERC918X	
ERC180X		ERC302X	X	ERC616X		ERC732X		ERC919X	
ERC181X		ERC302X(DSS)		ERC617X	X	ERC732XFHP			
ERC182X		ERC410XFH	X	ERC618X	X	ERC750X			
ERC183X		ERC411X		ERC618XALT		ERC751X			

SCHEDULE OF DRAWINGS

DRAWING NO.	DESCRIPTION
CS1	COVER SHEET
CS2	BUILDING NOTES
CS3	APPENDIX B
S1	ELEVATIONS & NOTES
S2	FLOOR PLAN, DETAILS & NOTES
S3	CROSS SECTION
F1	FOUNDATION PLAN, DETAIL & NOTES
F2	FOUNDATION DETAILS

BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

GENERAL NOTES:

1. CONCRETE FOUNDATIONS AND FLOOR SLAB ARE TO BE SUPPLIED AND INSTALLED BY OTHERS . WEDGE ANCHORS FOR INTERIOR AND EXTERIOR FOOTINGS SUPPLIED AND INSTALLED BY BETCO.
2. EXTERIOR OPENINGS, NOT DESIGNATED AS DOOR LOCATIONS, TO BE COMPLETED USING EXTERIOR WALL PANELS FURNISHED BY BETCO.
3. USE DOW 791 SILICONE CAULK AND 1/2" WIDE BUTYL RUBBER TAPE SEALANT FOR ROOF INSTALLATION. USE DOW 799 SILICONE CAULK AT DOWNSPOUT TO GUTTER JOINT.
4. INTERIOR PARTITIONS PERPENDICULAR TO ROOF BEAM(S) MUST BE COMPLETED BEFORE ROOF PANELS ARE INSTALLED. USE PARTITION FRAMING TO PLUMB AND SQUARE COLUMNS AND HEADER SECTIONS. CHECK BUILDING WIDTH AT TOP OF COLUMNS PRIOR TO ROOF INSTALLATION.
5. THOROUGHLY SWEEP ROOF PANELS FOLLOWING INSTALLATION TO REMOVE METAL DRILLINGS.
6. THIS DESIGN IS BASED ON USING ONLY METAL BUILDING COMPONENTS WHICH ARE PROPRIETARY TO BETCO. FURTHER, THE PROFESSIONAL ENGINEER'S SEAL IS INVALID UNLESS ONLY BETCO METAL BUILDING COMPONENTS ARE UTILIZED.
7. METAL STUDS (IF APPLICABLE) MAY REQUIRE FIELD CUTTING DEPENDING UPON THE EAVE HEIGHT OF THE STRUCTURE.
8. UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.
9. THESE DRAWINGS ARE THE PROPERTY OF BETCO, INC. AND MAY NOT BE USED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF BETCO, INC.
10. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.
11. THE GENERAL CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC. AS REQUIRED BY THE VARIOUS TRADES.

FOUNDATIONS:

1. THE FOUNDATION DESIGN IS BASED ON A PRESUMED ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF. NOTIFY ENGINEER IF SITE CONDITIONS DIFFER FROM DESIGN ASSUMPTIONS SPECIFIED.
2. IF FOOTING ELEVATIONS SHOWN OCCUR IN A DISTURBED, UNSTABLE OR UNSUITABLE SOIL, THE ENGINEER SHALL BE NOTIFIED.
3. TOP OF FOOTING ELEVATIONS ARE SHOWN ON THE DRAWINGS ARE TO BE DETERMINED BY THE CONTRACTOR IN THE FIELD IN ACCORDANCE WITH THE GUIDE LINES SET FORTH IN THE DRAWINGS AND SPECIFICATIONS.
4. FILL MATERIAL SHALL BE FREE OF ROOTS. WOOD OR OTHER ORGANIC MATERIAL AND COMPLY WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. MATERIALS USED FOR FILL UNDER FOOTINGS AND WITHIN BUILDING LIMITS SHALL BE TESTED AND APPROVED FOR THE USE BY THE GEOTECHNICAL TESTING AGENCY.
5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEERS APPROVAL.
6. FOUNDATION WALLS RETAINING EARTH SHALL BE BRACED AGAINST BACK FILLING PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE.
7. FOUNDATION WALLS OR GRADE BEAMS HAVING EARTH PLACED ON EACH SIDE SHALL HAVE BOTH FILLED SIMULTANEOUSLY TO MAINTAIN A COMMON ELEVATION.
8. DO NOT PLACE CONCRETE IN ANY EXCAVATION CONTAINING ICE, FROST, FROZEN GROUND OR FREE WATER. FROZEN SUB GRADES MUST BE THAWED AND RECOMPACTED PRIOR TO PLACING CONCRETE.
9. EARTH FORMED FOOTINGS SHALL CONFORM TO THE SHAPE, LINES, AND DIMENSIONS AS SHOWN ON THE FOUNDATION PLAN. ALL WATER SHALL BE REMOVED BEFORE DEPOSITING CONCRETE.
10. BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY LOCATED, ACCURATELY POSITIONED, AND MAINTAINED SECURELY IN PLACE.
11. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
12. PERIMETER FOUNDATION MUST NOT EXCEED 1/4" ELEVATION VARIATION ALONG ANY 50' DISTANCE OF BUILDING LENGTH.
13. PERIMETER FOUNDATION TO EXTEND BELOW FROST LINE. VERIFY REQUIRED DEPTH WITH LOCAL BUILDING OFFICIALS PRIOR TO PROCEEDING WITH FOUNDATION WORK AND NOTIFY ENGINEER OF DEVIATION FROM DRAWING.
14. THE AMERICAN CONCRETE INSTITUTE DOES NOT RECOGNIZE FIBERMESH AS A SUBSTITUTE FOR WIRE MESH REINFORCED CONCRETE WHEN SUBJECTED TO TENSILE STRESS
15. SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS . . . OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60 (Fy-60,000 PSI).
2. FIELD BENDING OF CONCRETE REINFORCING STEEL IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
3. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI SP-66 "ACI DETAILING MANUAL-1994" AND THE "CRSI MANUAL OF STANDARD PRACTICE", LATEST EDITION.
4. PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUTING.
5. CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS NOTED OTHERWISE.

A. FOOTING AND GRADE BEAMS IN GROUND CONTACT	3 INCHES
B. BEAMS AND COLUMNS	2 INCHES
C. SLABS, WALLS, AND JOISTS	3/4 INCH - NOT EXPOSED TO EARTH, LIQUID OR WEATHER
D. SLABS ON GRADE	2 INCHES FROM TOP
E. FORMED SURFACES IN GROUND CONTACT	2 INCHES

6. DEVELOPMENT LENGTHS AND LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318-14 CHAPTER 12 AND AS INDICATED ON THE DRAWINGS. WHERE SPLICES ARE NOT CALLED OUT ON THE DRAWINGS, USE CLASS "B", BUT IN NO CASE SHALL ANY SPLICE BE LESS THAN 12 INCHES. FOR BARS AS INDICATED BELOW THE BASIC DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY THE FACTORS AS INDICATED FOR TENSION OR COMPRESSION AND THEN ROUNDED UP TO THE NEAREST WHOLE INCH. THE FACTORS INDICATED BELOW ARE CUMULATIVE FOR EACH OF THE CONDITIONS APPLICABLE.
7. WELDED WIRE MAT/FABRIC SHALL CONFORM TO ASTM A184 AND A185 RESPECTIVELY AND BE LAPPED 1'-0" AT ALL SPLICES.
8. ALL REINFORCING TERMINATING AT THE TOPS OF COLUMNS AND PILASTERS SHALL BE HOOKED UNLESS OTHERWISE NOTED.
9. SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING, AND PLACEMENT OF CONCRETE REINFORCEMENT. COMPLY WITH ACI DETAILING MANUAL (SP-66) SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, ARRANGEMENT OF CONCRETE REINFORCEMENT. INCLUDE SPECIAL REINFORCEMENT REQUIRED AT OPENINGS THROUGH CONCRETE STRUCTURES. INCLUDE ALL ACCESSORIES SPECIFIED/ REQUIRED TO SUPPORT REINFORCING.
10. SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION. DRAWINGS SHALL BEAR THE CONTRACTOR'S APPROVAL STAMP ACCEPTING RESPONSIBILITY FOR DIMENSIONS, QUANTITIES AND COORDINATION WITH THE OTHER TRADES.
11. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER AND TESTING AGENCY A MINIMUM OF 48 HOURS PRIOR TO ALL CONCRETE POURS IN ORDER TO PERMIT REINFORCING STEEL REVIEW AS REQUIRED BY THE INSPECTION SCHEDULE.
12. REINFORCING IN ALL CONTINUOUS STRIP FOOTINGS SHALL HAVE CORNER BARS OR DOWELS. PROVIDE AT ALL CORNERS AND INTERSECTIONS.

CONSTRUCTION AND SAFETY:

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.
3. MEANS AND METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS ARE SOLELY THE CONTRACTORS RESPONSIBILITY.
4. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE DRAWINGS OF OTHER CONSULTANTS AND TRADES. THE CONTRACTOR SHALL COORDINATE THE VARIOUS REQUIREMENTS.
5. NO OPENINGS NOR ANY CHANGES IN SIZE, DIMENSION OR LOCATION SHALL BE MADE IN ANY STRUCTURAL ELEMENTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.
7. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTORS MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER, CLEARLY AND EXPLICITLY IN WRITING, OF ANY DEVIATION OR SUBSTITUTION OF REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONTRACTOR IS NOT RELIEVED OF ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS BY VIRTUE OF THE STRUCTURAL ENGINEERS REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS CLEARLY AND EXPLICITLY INFORMED THE STRUCTURAL ENGINEER IN WRITING OF ANY DEVIATIONS OR SUBSTITUTIONS AT TIME OF SUBMISSION, AND THE STRUCTURAL ENGINEER HAS GIVEN WRITTEN APPROVAL FOR THE SPECIFIC DEVIATIONS OR SUBSTITUTIONS.
9. ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS OR AMBIGUITIES IN THE DRAWINGS OR SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER. CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE AFFECTED WORK MAY PROCEED.
10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY THE EXISTING CONDITIONS. STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.
11. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWINGS OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION, SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.
12. DO NOT SCALE THESE DRAWINGS, USE THE DIMENSIONS SHOWN.

CONCRETE:

1. SUBMIT WRITTEN REPORTS OF EACH PROPOSED CONCRETE DESIGN MIX NOT LESS THAN 15 DAYS PRIOR TO THE START OF WORK. DESIGN MIXES PREPARED MORE THAN TWELVE (12) MONTHS PRIOR TO THE DATE THE SUBMITTAL ARE NOT PERMITTED.
2. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14).
3. ALL CONCRETE SHALL BE TESTED BY AN INDEPENDENT TESTING AGENCY FOR STANDARD PARAMETERS (SLUMP, COMPRESSIVE STRENGTH, ETC.) TWO COPIES OF ALL REPORTS SHALL BE SUBMITTED TO THE ENGINEER/ ARCHITECT.
4. ALL NORMAL WEIGHT CONCRETE SHALL HAVE ASTM C-33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI AT 28 DAYS, MINIMUM FOR FOUNDATIONS AND SLABS ON GRADE. ALL CONCRETE FOR FLOOR SLABS ON METAL DECK FORMS SHALL BE NORMAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
5. MIX DESIGNS, INCLUDING WATER CEMENT RATIOS AND SLUMPS, SHALL BE PREPARED IN ACCORDANCE WITH MOST CURRENT ACI 301 CHAPTER 3, EXCEPT WHERE NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS. CEMENT SHALL CONFORM TO ASTM C 150 TYPE I OR AT CONTRACTOR'S OPTION, ASTM C 595 TYPE IP WHERE FLY ASH IS PERMITTED. NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF AND LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C 330 AGGREGATE. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED IN ANY CONCRETE.

   AGGREGATE SIZES SHALL BE:
   - I. FORMED CONCRETE ELEMENTS, U.N.O. ..... #67 STONE (3/4" MAX)
   - II. GRADE SLABS AND EARTH FORMED ELEMENTS ..... #57 STONE (1" MAX)
   - III. COARSE MASONRY GROUT REQUIRED ..... #67 STONE (3/4" MAX)
   - IV. FINE MASONRY GROUT REQUIRED ..... #8 STONE (3/8" MAX)

6. WATER REDUCING ADMIXTURE SHALL BE USED IN ALL CONCRETE.
7. AIR ENTRAINING ADMIXTURE IN ACCORDANCE WITH ACI 301-84 TABLE 3.4.1. SHALL BE USED IN ALL CONCRETE EXPOSED TO FREEZING AND THAWING DURING CONSTRUCTION OR SERVICE CONDITIONS.
8. WATER/CEMENT RATIO SHALL NOT EXCEED 0.45 FOR ANY CONCRETE SUBJECTED TO FREEZING/THAWING.
9. ALL PUMPED CONCRETE SHALL HAVE A WATER/CEMENT RATIO LESS THAN 0.45 AND SHALL CONTAIN A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER).
10. IN NO CASE SHALL A WATER/CEMENT RATIOS EXCEED THE FOLLOWING:
    - I. ALL FOUNDATION CONCRETE fc 3000 psi ..... 0.55 MAX. W/C RATIO
    - II. EXTERIOR PAVING CONCRETE fc 3500 psi ..... 0.50 MAX. W/C RATIO
    - III. ALL EXPOSED C.I.P. WATERTABLE, PIERS, ETC... fc 3500 psi ..... 0.45 MAX. W/C RATIO
    - III. SLABS ON GRADE fc 3000 psi ..... 0.45 MAX. W/C RATIO
11. LIQUID MEMBRANE CURING COMPOUND WITH A MINIMUM 30% SOLIDS CONTENT SHALL BE APPLIED WITHIN TWO (2) HOURS AFTER COMPLETION OF FINISHING TO ALL CONCRETE FLATWORK AND WALLS, U.N.O., OTHER THAN FOOTINGS AND GRADE BEAMS.
12. FLOORS IN AREAS RECEIVING QUARRY TILE, CERAMIC TILE AND LIQUID FLOOR HARDENER SHALL BE CURED WITH DISSIPATING LIQUID MEMBRANE CURING COMPOUND OR WET CURED BY USE OF MOISTURE RETAINING COVER. DISSIPATING CURING COMPOUND SHALL BE THOROUGHLY BROOMED AND WASHED OFF PRIOR TO APPLICATION OF FLOOR FINISH.
13. USE A NON-CORROSIVE, NON-CHLORIDE ACCELERATING ADMIXTURE IN CONCRETE EXPOSED TO TEMPERATURES BELOW 40 DEGREES. UNIFORMLY HEAT THE WATER AND AGGREGATES TO A TEMPERATURE OF NOT LESS THAN 50 DEGREES. PLACE AND CURE CONCRETE IN ACCORDANCE WITH ACI 306.
14. ALL CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE UNLESS THEIR ELIMINATION IS APPROVED BY THE STRUCTURAL ENGINEER.
15. REINFORCING IN ALL ABUTTING CONCRETE, INCLUDING FOOTINGS, SHALL BE CONTINUOUS THROUGH OR AROUND ALL CORNERS OR INTERSECTIONS. DOWELS OR SPLICES SHALL BE EQUAL IN SIZE AND SPACING TO THE REINFORCING IN THE ABUTTING MEMBERS.
16. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIPS, REGLETS, WASHES, MASONRY ANCHORS, BRICK LEDGE ELEVATIONS, SLAB DEPRESSIONS AND MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
17. FORMS FOR ROUND COLUMNS SHALL BE ONE PIECE FIBERGLASS FORM TO PRODUCE SMOOTH FINISH ON EXPOSED COLUMNS.
18. REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301.
19. BASE PLATES, ANCHOR RODS, SUPPORT ANGLES AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
20. FINISHING TOLERANCE SHALL BE WITHIN CLASS B IN ACCORDANCE WITH ACI 301 AND CONSIDERATION SHALL BE GIVEN TO SEQUENCING OF CONCRETE PLACEMENT TO FACILIATE CONTROL OF FINISH ELEVATIONS.
21. NON-SHRINK GROUT SHALL BE PRE-MIXED, NON-CORROSIVE, NON-METALLIC, NON-STAINING CONTAINING SILICA SANDS, PORTLAND CEMENT, SHRINKAGE COMPENSATING AND WATER REDUCING AGENTS. PRODUCTS SHALL ONLY REQUIRE THE ADDITION OF WATER. MINIMUM COMPRESSIVE STRENGTH SHALL BE 5000 PSI AFTER ONE DAY AND 7000 PSI AFTER 28 DAYS. GROUT SHALL BE FREE OF GAS PRODUCING OR AIR RELEASING AND OXIDIZING AGENTS AND CONTAIN NO CORROSIVE IRON, ALUMINUM OR GYPSUM.
22. PROVIDE CONCRETE GROUT - NOT MORTAR - FOR REINFORCING MASONRY LINTEL AND BOND BEAMS WHERE INDICATED ON DRAWINGS OR AS SCHEDULED.
23. TOLERANCE FOR ANCHOR RODS AND OTHER EMBEDDED ITEMS SHALL BE PER THE AISC CODE OF STANDARD PRACTICE SECTION 7.5.
24. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT ALL COLUMN, WALL, SLAB, OR BEAM EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

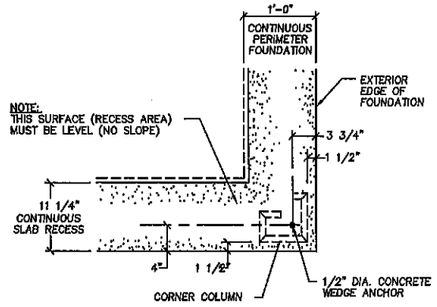
BETCO, Inc.
228 Commerce Blvd.
Statesville, NC 28625
Limited Engineering License # D-0140

REVISIONS	DATE	BY

DATE: 8/28/20
DRAWN BY: K. MACLAY
SCALED: AS NOTED
APPROVED BY:

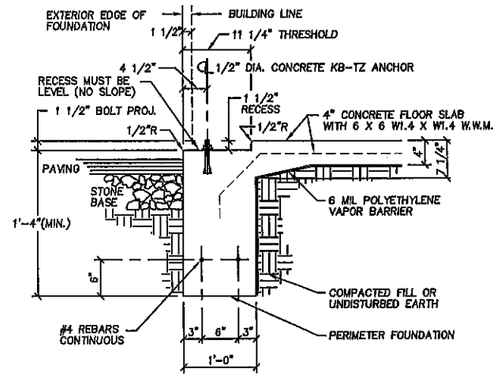
BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800) 654-7813

PROJECT NAME:
PROJECT ADDRESS:
OWNER:
SHEET TITLE: BUILDING NOTES
PROJECT NO.: NC2021
DRAWING NO.: CS2 OF 3



C / F2 TYPICAL CORNER WEDGE ANCHORS

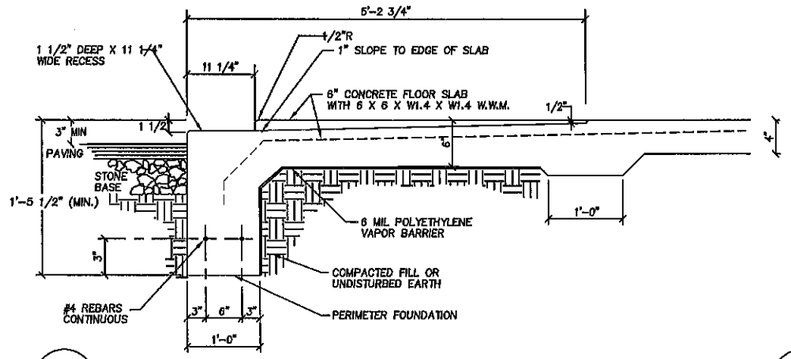
NOT TO SCALE



A / F2 TYPICAL PERIMETER FOUNDATION SECTION

(MONOLITHIC CONCRETE PLACEMENT)

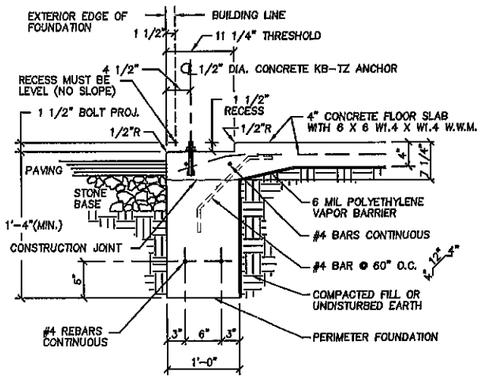
NOT TO SCALE



D / F2 PERIMETER FOUNDATION SECTION AT 5'-0" ALCOVE AREAS BUILDING "1"

(MONOLITHIC CONCRETE PLACEMENT)

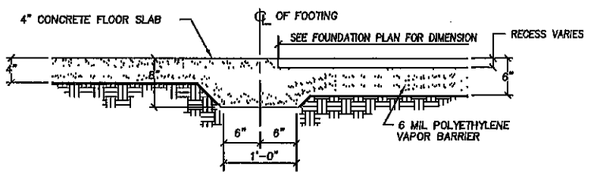
NOT TO SCALE



A / F2 ALTERNATE PERIMETER FOUNDATION SECTION

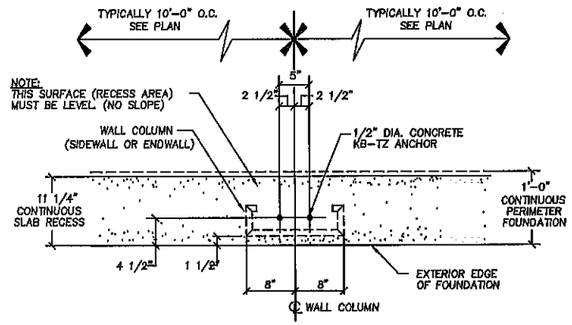
(TWO STAGE CONCRETE PLACEMENT)

NOT TO SCALE



E / F2 CONTINUOUS THICKENED SLAB SECTION @ ALCOVES

NOT TO SCALE



B / F2 TYPICAL WALL COLUMN WEDGE ANCHORS

NOT TO SCALE

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REVISIONS	DATE	BY

DATE: 8/28/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

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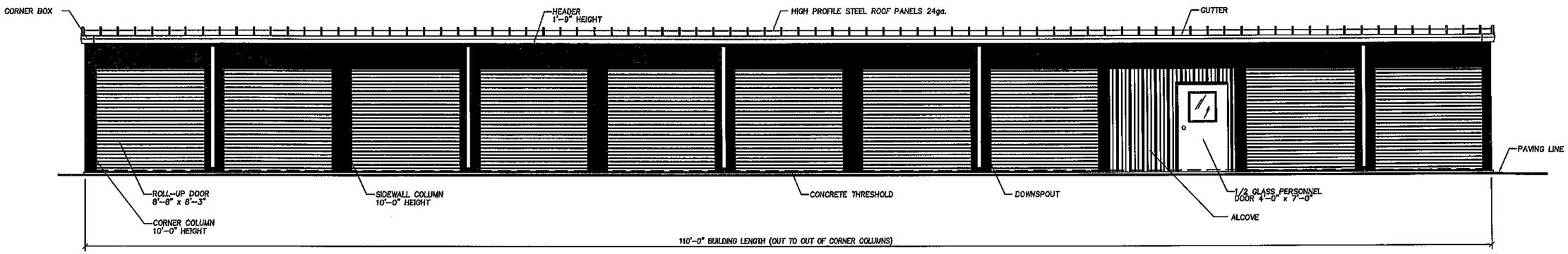
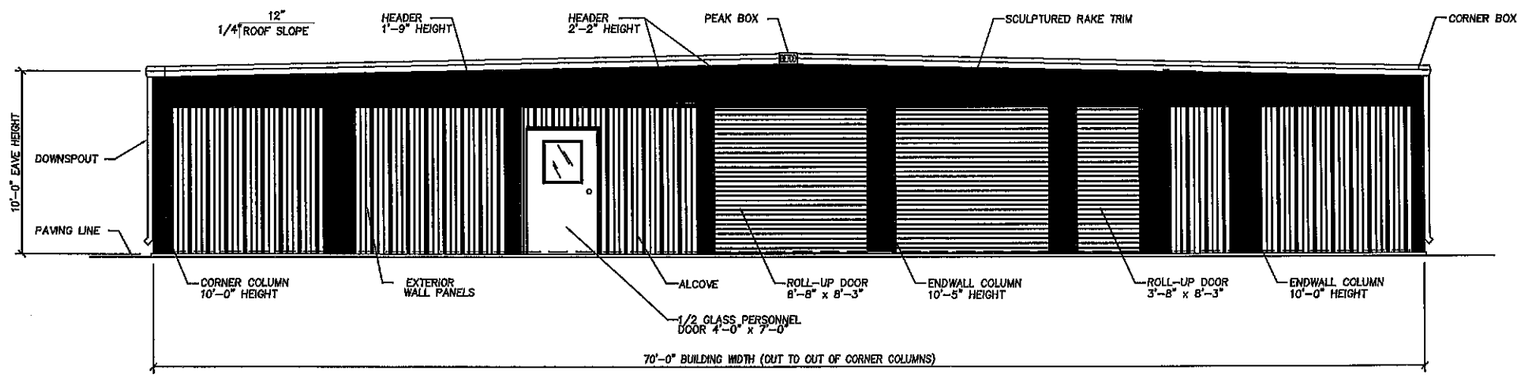
PROJECT NAME:
PROJECT ADDRE...
OWNER:
SHEET TITLE: FOUNDATION DETAILS

PROJECT NO.: NC20211
DRAWING NUMBER: F2 OF 2



A/S1 SIDEWALL ELEVATION . . . BUILDING "1"
SCALE: 1/4" = 1'-0"



B/S1 ENDWALL ELEVATION . . . BUILDING "1"
SCALE: 1/4" = 1'-0"

NOTE:
DOWNSPOUTS LOCATIONS SHOWN FOR ELEVATION PURPOSE ONLY. REFER TO FLOOR PLAN SHEETS FOR LOCATIONS

NOTE: . . . SEE OWNER FOR BUILDING ORIENTATION ON SITE

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Statesville, NC 28625
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REVISIONS	DATE	BY

DATE: 8/28/20
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SCALE: AS NOTED
APPROVED BY:

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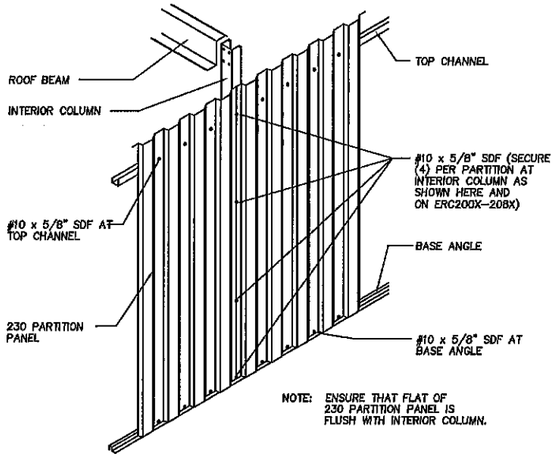
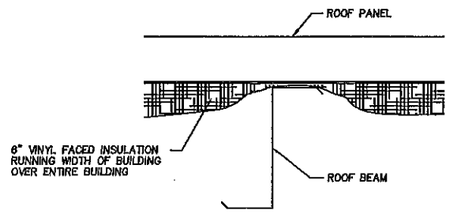
PROJECT NAME:
PROJECT ADDRS:
OWNER:
SHEET TITLE: ELEVATIONS & NOTES

PROJECT NO.: NC20211
DRAWING NUMBER: S1 OF 3



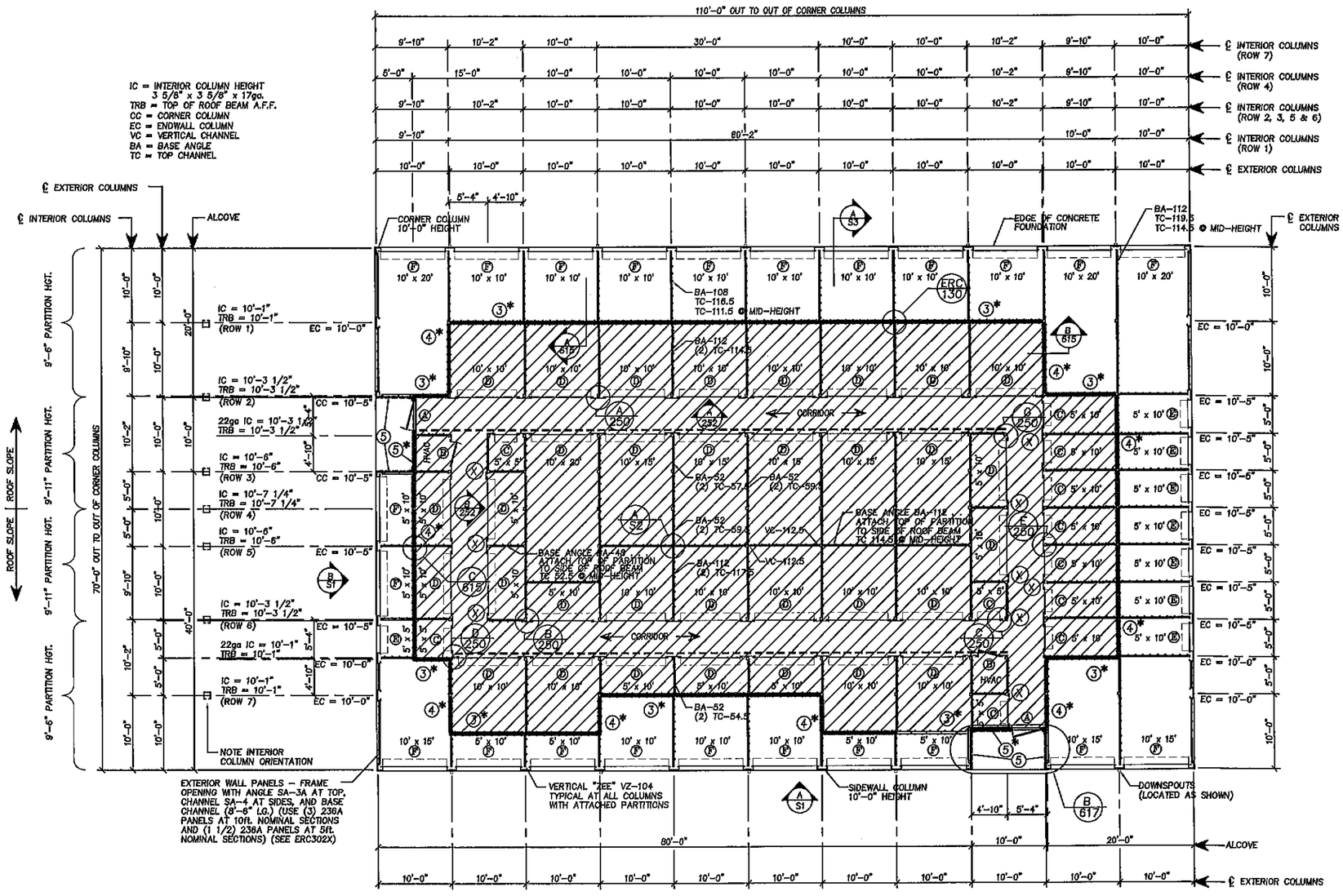
A / S2 PARTITION ATTACHMENT @ INTERIOR COLUMNS

NOT TO SCALE



B / S2 INSULATION @ ROOF BEAM BUILDING "1"

NOT TO SCALE



FLOOR PLAN . . . BUILDING "1"

SCALE: 1/8" = 1'–0"

NOTE: BUILDING "1" IS PROVIDED W/(2) ADJUSTABLE CONTROL JOINT COLUMNS. 10'–0" HEIGHT

NOTES:

--- 6" ROOF INSULATION (R–19) INCLUDED AT ENTIRETY OF BUILDING "1".
--- 4" WALL INSULATION (R–13) INCLUDED AT STUD WALL OF BUILDING "1".
--- 4" x 5" KICK–OUT DOWNSPOUTS ARE INCLUDED.
--- CORRIDOR WIDTH WILL BE A MINIMUM OF APPROXIMATELY 56" FROM FACE TO FACE OF DOOR JAMBS.
--- ATTACH ALL STUDS TO TRACKS WITH #10 x 5/8" SDF (4 PER STUD).
--- BURGLAR BARS ARE PROVIDED ABOVE INTERIOR ROLL–UP DOORS AS REQUIRED.
--- INTERIOR DOOR FRAMES AND PARTITIONS AT HALLWAYS ARE PREPAINTED.
--- ALL PERSONNEL DOORS ARE GLOBAL AND INCLUDE LOCK–OPEN TYPE CLOSERS.
--- ALL ROLL–UP DOORS ARE BY BETCO & INCLUDE TENSION ADJUSTERS & BEARINGS.
--- CORNER GUARDS ARE INCLUDED AT INTERIOR HALLWAYS.
--- SECURE INTERIOR PARTITION TO INTERIOR COLUMNS WITH (4) #10 x 5/8" SDF'S AS SHOWN ON ERC200X – ERC208X.
--- INTERIOR DOOR JAMBS INCLUDE PARTITION CLOSURE ANGLES.
--- NOTE FOR INTERIOR BEARING STUDWALLS: (SECURE BOTTOM TRACK W/ 3/8" x 3" KB–TZ ANCHORS (2" MIN. EMBEDDMENT @ 30" O.C. MAXIMUM)
--- NOTE FOR ALL EXTERIOR STUDWALLS: (SECURE FLOOR TRACK w/ 3/8" x 3" KB–TZ ANCHORS (2" MIN. EMBEDDMENT @ 30" O.C. MAXIMUM)

NOTE:
15ft. ROOF BEAMS ARE 3" x 10" x 12ga. ZEE'S.

STUDWALL LEGEND — BUILDING # 1

INTERIOR STUDWALL | EXTERIOR STUDWALL

DESCRIPTION	UNINSULATED	INSULATED *
③* INSULATED LOAD BEARING STUDWALL	N/A	180 L.F.
④* INSULATED NON–LOAD BEARING STUDWALL	N/A	110 L.F.
⑤ EXTERIOR STUDWALL CONSTRUCTION AT HVAC (BLOCK @ MID–HGT.)	20 L.F.	20 L.F.

NOTE #1: SEE ERC610X FOR COMPLETE STUDWALL CONSTRUCTION DETAILS.
NOTE #2: * = INSULATED (SEE ERC610X) – COORDINATE WITH FLOOR PLAN. (NOTE WALLS #3 AND #4 ARE ALWAYS INSULATED)
NOTE #3: SEE BLOCKING DETAIL A/681 ON ERC681X

DOOR SCHEDULE

ID	DOOR SIZE	TYPE
Ⓐ	4'–0" x 7'–0" (4070 – 2 – G) (ERC254X)	1/2 GLASS PERSONNEL
Ⓑ	3'–0" x 7'–0" w/LOUVER	INTERIOR SWING
Ⓒ	5'–0" x 7'–0"	INTERIOR ROLL–UP
Ⓓ	8'–0" x 7'–0"	INTERIOR ROLL–UP
Ⓔ	5'–8" x 8'–3"	EXTERIOR ROLL–UP
Ⓕ	8'–8" x 8'–3"	EXTERIOR ROLL–UP

NOTE: BLOCK ALL LOAD–BEARING INTERIOR & EXTERIOR STUD WALLS AS SHOWN IN DETAIL A OF ERC681X

NOTE: . . . SEE OWNER FOR BUILDING ORIENTATION ON SITE

NOTE:
UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.

LEGEND:

(X) 22ga. INTERIOR COLUMN
(– – –) 22 ga. INTERIOR DOOR STRUCTURE
CLIMATE CONTROL

NOTE COLUMN ORIENTATION @ CORRIDORS PARALLEL TO ROOF BEAMS

← CORRIDOR →

JAMB	ROLL–UP HEADER	SWING DOOR HEADER
8'–0"	12"	10 1/2"

NOTE:
SEE ERC602X FOR EXTERIOR SWING DOOR FRAMING IN STUDWALL.

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REVISIONS | DATE | BY

DATE: 8/28/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

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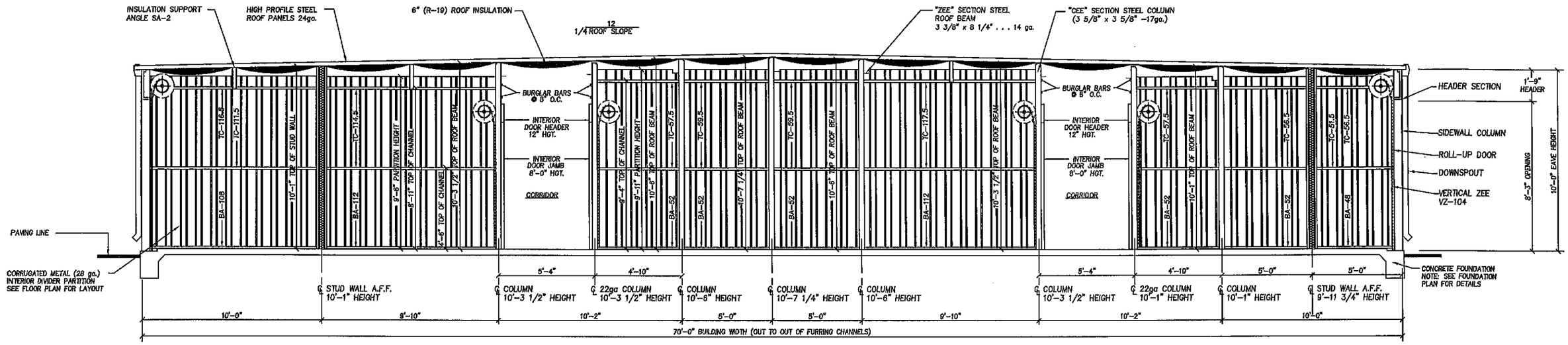
PROJECT NAME:
PROJECT ADDR
OWNER:
SHEET TITLE: FLOOR PLAN, DETAILS & NOTES
PROJECT NO.: NC20311
DRAWING NUMBER: S2 OF 3



A / S3 70'-0" WIDE CROSS SECTION . . . BUILDING "1"

SCALE: 3/8" = 1'-0"

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Statesville, NC 28625
Limited Engineering License # D-0140

REVISIONS	DATE	BY

DATE: 8/26/20
DRAWN BY: K. MACIAY
SCALE: AS NOTED
APPROVED BY:

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(800) 654-7813

PROJECT NAME:
PROJECT ADDR...
OWNER:
SHEET TITLE: CROSS SECTION

PROJECT NO.: NCS0211
DRAWING NUMBER: S3 of 3

BETCO

SUBMITTED TO :

WIND LOAD DESIGN DATA:
ULTIMATE DESIGN WIND SPEED (V_{ULT}): 115 MPH
NOMINAL DESIGN WIND SPEED (V_{ASD}): 90 MPH
RISK CATEGORY: I
WIND EXPOSURE: B
INTERNAL PRESSURE COEFFICIENT: ± 0.18

SNOW LOAD DESIGN DATA:
GROUND SNOW LOAD (Pg): 30 PSF
FLAT-ROOF SNOW LOAD (Pf): 24.19 PSF
SNOW EXPOSURE FACTOR (Ce): 1.2
SNOW LOAD IMPORTANCE FACTOR (I): 0.8
THERMAL FACTOR (Ct): 1.2

EARTHQUAKE LOAD DESIGN DATA:

- RISK CATEGORY: I
- SEISMIC IMPORTANCE FACTOR (I): 1.0
- SEISMIC DESIGN CATEGORY: B
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7-10 SECTION 12.8)
- BASIC SEISMIC-FORCE-RESISTING SYSTEM: LIGHT FRAMED WALLS WITH STEEL SHEAR PANELS
- SITE CLASS: D
- DESIGN BASE SHEAR: BUILDING "1": 0.870^{K}
- RESPONSE MODIFICATION FACTOR (R): 7.0
- SEISMIC RESPONSE COEFFICIENT (C_S): 0.029
- MAPPED SPECTRAL RESPONSE ACCELERATION
  (S_S): 19.0% G
  (S_1): 7.4% G
- SPECTRAL RESPONSE COEFFICIENTS
  (S_{MS}): 20.3% G
  (S_{D1}): 11.9% G

BUILDING DATA :

BUILDING DESCRIPTION :

SINGLE STORY METAL BUILDING BOLTED TO CONCRETE SLAB FOUNDATION.

BUILDING SIZE :

BUILDING "1" 50' X 120' = 6,000 sq. ft. 8'-6" EAVE HEIGHT

PARKING DATA :

SEE SITE PLAN BY OTHERS

BUILDING CODE :

THE 2015 INTERNATIONAL BUILDING CODE

DESIGN CRITERIA :

THIS BUILDING HAS BEEN DESIGNED TO CONFORM TO THE STRUCTURAL REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE, WITH CURRENT REVISIONS.

THESE BUILDINGS HAVE BEEN DESIGNED FOR THE FOLLOWING LIVE LOADINGS IN ADDITION TO THE DEAD LOADINGS :

ROOF LIVE LOADING :	20 psf
FLOOR LIVE LOADING:	125 psf
USE GROUP:	S-1
TYPE OF CONSTRUCTION:	II-B

IT IS THE RESPONSIBILITY OF THE BUYER/OWNER TO VERIFY THE FIREWALL, LIVE LOAD AND WIND LOAD REQUIREMENTS WITH THE LOCAL CODE AUTHORITY.

PROJECT NUMBER :

WV20152

ERECTION DRAWINGS

ERC010X		ERC200X		ERC420X		ERC619X		ERC750X			
ERC016X	X	ERC201X	X	ERC500X		ERC620X		ERC751X			
ERC100X	X	ERC202X	X	ERC505X	X	ERC621X		ERC752X			
ERC105X	X	ERC203X	X	ERC506X	X	ERC622X		ERC753X			
ERC106X		ERC204X		ERC515X		ERC623X		ERC754X			
ERC110X	X	ERC206X		ERC600X	X	ERC624X		ERC800X			
ERC112X		ERC207X		ERC601X	X	ERC625X		ERC900X			
ERC115X		ERC208X	X	ERC602X		ERC628X		ERC901X			
ERC120X		ERC209X		ERC603X		ERC630X	X	ERC902X			
ERC130X		ERC250X		ERC604X		ERC631X	X	ERC903X			
ERC150X		ERC250XFHP		ERC605X		ERC650X		ERC904X			
ERC151X		ERC251X		ERC606X		ERC651X		ERC905X			
ERC152X		ERC251XFHP		ERC607X		ERC652X		ERC907X			
ERC153X		ERC252X		ERC608X		ERC700X	X	ERC908X			
ERC154X		ERC251XFHP		ERC609X		ERC710X		ERC910X			
ERC155X		ERC253X		ERC610X	X	ERC711XPT		ERC911X			
ERC175X		ERC254X		ERC611X		ERC712X		ERC912X			
ERC176X		ERC255X		ERC612X		ERC713X		ERC913X			
ERC177X		ERC256X		ERC613X		ERC720X		ERC914X			
ERC178X		ERC257X		ERC614X		ERC725X		ERC915X			
ERC179X		ERC258X		ERC615X		ERC730X		ERC916X			
ERC180X		ERC302X		ERC616X		ERC731X		ERC917X			
ERC181X		ERC303X		ERC617X		ERC731XFHP		ERC918X			
ERC182X		ERC410XFL	X	ERC618X		ERC732X		ERC919X			
ERC183X		ERC411X		ERC618XALT		ERC732XFHP					

SCHEDULE OF DRAWINGS

DRAWING NO.	DESCRIPTION
CS	COVER SHEET
CS2	BUILDING NOTES
S1	ELEVATIONS & NOTES
S2	FLOOR PLANS, CROSS SECTION, DETAILS & NOTES
F1	FOUNDATION PLAN, DETAILS & NOTES

2	REVISED WIND AND SNOW LOAD	9/28/20 JCM
1	REVISED BUILDING LENGTH	9/18/20 JCM

REED N. SELF REGISTERED 20370 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

RELEASED FOR CONSTRUCTION, Date: 9/28/2020, Time: 2:03 PM

GENERAL NOTES:

1. CONCRETE FOUNDATIONS AND FLOOR SLAB ARE TO BE SUPPLIED AND INSTALLED BY OTHERS . WEDGE ANCHORS FOR INTERIOR AND EXTERIOR FOOTINGS SUPPLIED AND INSTALLED BY BETCO.
2. EXTERIOR OPENINGS, NOT DESIGNATED AS DOOR LOCATIONS, TO BE COMPLETED USING EXTERIOR WALL PANELS FURNISHED BY BETCO.
3. USE DOW 791 SILICONE CAULK AND 1/2" WIDE BUTYL RUBBER TAPE SEALANT FOR ROOF INSTALLATION. USE DOW 799 SILICONE CAULK AT DOWNSPOUT TO GUTTER JOINT.
4. INTERIOR PARTITIONS PERPENDICULAR TO ROOF BEAM(S) MUST BE COMPLETED BEFORE ROOF PANELS ARE INSTALLED. USE PARTITION FRAMING TO PLUMB AND SQUARE COLUMNS AND HEADER SECTIONS. CHECK BUILDING WIDTH AT TOP OF COLUMNS PRIOR TO ROOF INSTALLATION.
5. THOROUGHLY SWEEP ROOF PANELS FOLLOWING INSTALLATION TO REMOVE METAL DRILLINGS.
6. THIS DESIGN IS BASED ON USING ONLY METAL BUILDING COMPONENTS WHICH ARE PROPRIETARY TO BETCO. FURTHER, THE PROFESSIONAL ENGINEER'S SEAL IS INVALID UNLESS ONLY BETCO METAL BUILDING COMPONENTS ARE UTILIZED.
7. METAL STUDS (IF APPLICABLE) MAY REQUIRE FIELD CUTTING DEPENDING UPON THE EAVE HEIGHT OF THE STRUCTURE.
8. UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.
9. THESE DRAWINGS ARE THE PROPERTY OF BETCO, INC. AND MAY NOT BE USED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF BETCO, INC.
10. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.
11. THE GENERAL CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC. AS REQUIRED BY THE VARIOUS TRADES.

FOUNDATIONS:

1. THE FOUNDATION DESIGN IS BASED ON A PRESUMED ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF. NOTIFY ENGINEER IF SITE CONDITIONS DIFFER FROM DESIGN ASSUMPTIONS SPECIFIED.
2. IF FOOTING ELEVATIONS SHOWN OCCUR IN A DISTURBED, UNSTABLE OR UNSUITABLE SOIL, THE ENGINEER SHALL BE NOTIFIED.
3. TOP OF FOOTING ELEVATIONS ARE SHOWN ON THE DRAWINGS ARE TO BE DETERMINED BY THE CONTRACTOR IN THE FIELD IN ACCORDANCE WITH THE GUIDE LINES SET FORTH IN THE DRAWINGS AND SPECIFICATIONS.
4. FILL MATERIAL SHALL BE FREE OF ROOTS, WOOD OR OTHER ORGANIC MATERIAL AND COMPLY WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. MATERIALS USED FOR FILL UNDER FOOTINGS AND WITHIN BUILDING LIMITS SHALL BE TESTED AND APPROVED FOR THE USE BY THE GEOTECHNICAL TESTING AGENCY.
5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEERS APPROVAL.
6. FOUNDATION WALLS RETAINING EARTH SHALL BE BRACED AGAINST BACK FILLING PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE.
7. FOUNDATION WALLS OR GRADE BEAMS HAVING EARTH PLACED ON EACH SIDE SHALL HAVE BOTH FILLED SIMULTANEOUSLY TO MAINTAIN A COMMON ELEVATION.
8. DO NOT PLACE CONCRETE IN ANY EXCAVATION CONTAINING ICE, FROST, FROZEN GROUND OR FREE WATER. FROZEN SUB GRADES MUST BE THAWED AND RECOMPACTED PRIOR TO PLACING CONCRETE.
9. EARTH FORMED FOOTINGS SHALL CONFORM TO THE SHAPE, LINES, AND DIMENSIONS AS SHOWN ON THE FOUNDATION PLAN. ALL WATER SHALL BE REMOVED BEFORE DEPOSITING CONCRETE.
10. BEFORE PLACING CONCRETE, ALL EMBEDDED ITEMS SHALL BE PROPERLY LOCATED, ACCURATELY POSITIONED, AND MAINTAINED SECURELY IN PLACE.
11. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
12. PERIMETER FOUNDATION MUST NOT EXCEED 1/4" ELEVATION VARIATION ALONG ANY 50' DISTANCE OF BUILDING LENGTH.
13. PERIMETER FOUNDATION TO EXTEND BELOW FROST LINE. VERIFY REQUIRED DEPTH WITH LOCAL BUILDING OFFICIALS PRIOR TO PROCEEDING WITH FOUNDATION WORK AND NOTIFY ENGINEER OF DEVIATION FROM DRAWING.
14. THE AMERICAN CONCRETE INSTITUTE DOES NOT RECOGNIZE FIBERMESH AS A SUBSTITUTE FOR WIRE MESH REINFORCED CONCRETE WHEN SUBJECTED TO TENSILE STRESS
15. SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'-0" INTERVALS . . . OFFSET CUTS 2'-6" MINIMUM FROM INTERIOR COLUMN LINES.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60 (f_y=60,000 PSI).
2. FIELD BENDING OF CONCRETE REINFORCING STEEL IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
3. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI SP-66 "ACI DETAILING MANUAL-1994" AND THE "CRSI MANUAL OF STANDARD PRACTICE", LATEST EDITION.
4. PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUTING.
5. CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS NOTED OTHERWISE.

A.	FOOTING AND GRADE BEAMS IN GROUND CONTACT	3 INCHES
B.	BEAMS AND COLUMNS	2 INCHES
C.	SLABS, WALLS, AND JOISTS	3/4 INCH - NOT EXPOSED TO EARTH, LIQUID OR WEATHER
D.	SLABS ON GRADE	2 INCHES FROM TOP
E.	FORMED SURFACES IN GROUND CONTACT	2 INCHES

6. DEVELOPMENT LENGTHS AND LAP SPLICES SHALL BE IN ACCORDANCE WITH ACI 318-14 CHAPTER 12 AND AS INDICATED ON THE DRAWINGS. WHERE SPLICES ARE NOT CALLED OUT ON THE DRAWINGS, USE CLASS "B", BUT IN NO CASE SHALL ANY SPLICE BE LESS THAN 12 INCHES. FOR BARS AS INDICATED BELOW THE BASIC DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY THE FACTORS AS INDICATED FOR TENSION OR COMPRESSION AND THEN ROUNDED UP TO THE NEAREST WHOLE INCH. THE FACTORS INDICATED BELOW ARE CUMULATIVE FOR EACH OF THE CONDITIONS APPLICABLE.
7. WELDED WIRE MAT/FABRIC SHALL CONFORM TO ASTM A184 AND A185 RESPECTIVELY AND BE LAPPED 1'-0" AT ALL SPLICES.
8. ALL REINFORCING TERMINATING AT THE TOPS OF COLUMNS AND PILASTERS SHALL BE HOOKED UNLESS OTHERWISE NOTED.
9. SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING, AND PLACEMENT OF CONCRETE REINFORCEMENT. COMPLY WITH ACI DETAILING MANUAL (SP-66) SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, ARRANGEMENT OF CONCRETE REINFORCEMENT. INCLUDE SPECIAL REINFORCEMENT REQUIRED AT OPENINGS THROUGH CONCRETE STRUCTURES. INCLUDE ALL ACCESSORIES SPECIFIED/ REQUIRED TO SUPPORT REINFORCING.
10. SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION. DRAWINGS SHALL BEAR THE CONTRACTOR'S APPROVAL STAMP ACCEPTING RESPONSIBILITY FOR DIMENSIONS, QUANTITIES AND COORDINATION WITH THE OTHER TRADES.
11. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER AND TESTING AGENCY A MINIMUM OF 48 HOURS PRIOR TO ALL CONCRETE POURS IN ORDER TO PERMIT REINFORCING STEEL REVIEW AS REQUIRED BY THE INSPECTION SCHEDULE.
12. REINFORCING IN ALL CONTINUOUS STRIP FOOTINGS SHALL HAVE CORNER BARS OR DOWELS. PROVIDE AT ALL CORNERS AND INTERSECTIONS.

CONSTRUCTION AND SAFETY:

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.
3. MEANS AND METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS ARE SOLELY THE CONTRACTORS RESPONSIBILITY.
4. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE DRAWINGS OF OTHER CONSULTANTS AND TRADES. THE CONTRACTOR SHALL COORDINATE THE VARIOUS REQUIREMENTS.
5. NO OPENINGS NOR ANY CHANGES IN SIZE, DIMENSION OR LOCATION SHALL BE MADE IN ANY STRUCTURAL ELEMENTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.
7. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTORS MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER, CLEARLY AND EXPLICITLY IN WRITING, OF ANY DEVIATION OR SUBSTITUTION OF REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONTRACTOR IS NOT RELIEVED OF ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS BY VIRTUE OF THE STRUCTURAL ENGINEERS REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC, UNLESS THE CONTRACTOR HAS CLEARLY AND EXPLICITLY INFORMED THE STRUCTURAL ENGINEER IN WRITING OF ANY DEVIATIONS OR SUBSTITUTIONS AT TIME OF SUBMISSION, AND THE STRUCTURAL ENGINEER HAS GIVEN WRITTEN APPROVAL FOR THE SPECIFIC DEVIATIONS OR SUBSTITUTIONS.
9. ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS OR AMBIGUITIES IN THE DRAWINGS OR SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER. CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE AFFECTED WORK MAY PROCEED.
10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY THE EXISTING CONDITIONS. STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.
11. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWINGS OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.
12. DO NOT SCALE THESE DRAWINGS, USE THE DIMENSIONS SHOWN.

CONCRETE:

1. SUBMIT WRITTEN REPORTS OF EACH PROPOSED CONCRETE DESIGN MIX NOT LESS THAN 15 DAYS PRIOR TO THE START OF WORK. DESIGN MIXES PREPARED MORE THAN TWELVE (12) MONTHS PRIOR TO THE DATE THE SUBMITTAL ARE NOT PERMITTED.
2. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14).
3. ALL CONCRETE SHALL BE TESTED BY AN INDEPENDENT TESTING AGENCY FOR STANDARD PARAMETERS (SLUMP, COMPRESSIVE STRENGTH, ETC.) TWO COPIES OF ALL REPORTS SHALL BE SUBMITTED TO THE ENGINEER/ ARCHITECT.
4. ALL NORMAL WEIGHT CONCRETE SHALL HAVE ASTM C-33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI AT 28 DAYS, MINIMUM FOR FOUNDATIONS AND SLABS ON GRADE. ALL CONCRETE FOR FLOOR SLABS ON METAL DECK FORMS SHALL BE NORMAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
5. MIX DESIGNS, INCLUDING WATER CEMENT RATIOS AND SLUMPS, SHALL BE PREPARED IN ACCORDANCE WITH MOST CURRENT ACI 301 CHAPTER 3, EXCEPT WHERE NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS. CEMENT SHALL CONFORM TO ASTM C 150 TYPE I OR AT CONTRACTOR'S OPTION, ASTM C 595 TYPE IP WHERE FLY ASH IS PERMITTED. NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF AND LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C 330 AGGREGATE. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED IN ANY CONCRETE.

   AGGREGATE SIZES SHALL BE:
   - I. FORMED CONCRETE ELEMENTS, U.N.O. _____ #67 STONE (3/4" MAX)
   - II. GRADE SLABS AND EARTH FORMED ELEMENTS _____ #57 STONE (1" MAX)
   - III. COARSE MASONRY GROUT REQUIRED _____ #67 STONE (3/4" MAX)
   - IV. FINE MASONRY GROUT REQUIRED _____ #8 STONE (3/8" MAX)

6. WATER REDUCING ADMIXTURE SHALL BE USED IN ALL CONCRETE.
7. AIR ENTRAINING ADMIXTURE IN ACCORDANCE WITH ACI 301-84 TABLE 3.4.1 SHALL BE USED IN ALL CONCRETE EXPOSED TO FREEZING AND THAWING DURING CONSTRUCTION OR SERVICE CONDITIONS.
8. WATER/CEMENT RATIO SHALL NOT EXCEED 0.45 FOR ANY CONCRETE SUBJECTED TO FREEZING/THAWING.
9. ALL PUMPED CONCRETE SHALL HAVE A WATER/CEMENT RATIO LESS THAN 0.45 AND SHALL CONTAIN A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER).
10. IN NO CASE SHALL A WATER/CEMENT RATIOS EXCEED THE FOLLOWING:
    - I. ALL FOUNDATION CONCRETE f'c 3000 psi _____ 0.55 MAX. W/C RATIO
    - II. EXTERIOR PAVING CONCRETE f'c 3500 psi _____ 0.50 MAX. W/C RATIO
    - III. ALL EXPOSED C.I.P. WATERTABLE, PIERS, ETC.. f'c 3500 psi _____ 0.45 MAX. W/C RATIO
    - IIII. SLABS ON GRADE f'c 3000 psi _____ 0.45 MAX. W/C RATIO
11. LIQUID MEMBRANE CURING COMPOUND WITH A MINIMUM 30% SOLIDS CONTENT SHALL BE APPLIED WITHIN TWO (2) HOURS AFTER COMPLETION OF FINISHING TO ALL CONCRETE FLATWORK AND WALLS, U.N.O., OTHER THAN FOOTINGS AND GRADE BEAMS.
12. FLOORS IN AREAS RECEIVING QUARRY TILE, CERAMIC TILE AND LIQUID FLOOR HARDENER SHALL BE CURED WITH DISSIPATING LIQUID MEMBRANE CURING COMPOUND OR WET CURED BY USE OF MOISTURE RETAINING COVER. DISSIPATING CURING COMPOUND SHALL BE THOROUGHLY BROOMED AND WASHED OFF PRIOR TO APPLICATION OF FLOOR FINISH.
13. USE A NON-CORROSIVE, NON-CHLORIDE ACCELERATING ADMIXTURE IN CONCRETE EXPOSED TO TEMPERATURES BELOW 40 DEGREES. UNIFORMLY HEAT THE WATER AND AGGREGATES TO A TEMPERATURE OF NOT LESS THAN 50 DEGREES. PLACE AND CURE CONCRETE IN ACCORDANCE WITH ACI 306.
14. ALL CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE UNLESS THEIR ELIMINATION IS APPROVED BY THE STRUCTURAL ENGINEER.
15. REINFORCING IN ALL ABUTTING CONCRETE, INCLUDING FOOTINGS, SHALL BE CONTINUOUS THROUGH OR AROUND ALL CORNERS OR INTERSECTIONS. DOWELS OR SPLICES SHALL BE EQUAL IN SIZE AND SPACING TO THE REINFORCING IN THE ABUTTING MEMBERS.
16. REFER TO ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIPS, REGLETS, WASHES, MASONRY ANCHORS, BRICK LEDGE ELEVATIONS, SLAB DEPRESSIONS AND MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.
17. FORMS FOR ROUND COLUMNS SHALL BE ONE PIECE FIBERGLASS FORM TO PRODUCE SMOOTH FINISH ON EXPOSED COLUMNS.
18. REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301.
19. BASE PLATES, ANCHOR RODS, SUPPORT ANGLES AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
20. FINISHING TOLERANCE SHALL BE WITHIN CLASS B IN ACCORDANCE WITH ACI 301 AND CONSIDERATION SHALL BE GIVEN TO SEQUENCING OF CONCRETE PLACEMENT TO FACILIATE CONTROL OF FINISH ELEVATIONS.
21. NON-SHRINK GROUT SHALL BE PRE-MIXED, NON-CORROSIVE, NON-METALLIC, NON-STAINING CONTAINING SILICA SANDS, PORTLAND CEMENT, SHRINKAGE COMPENSATING AND WATER REDUCING AGENTS. PRODUCTS SHALL ONLY REQUIRE THE ADDITION OF WATER. MINIMUM COMPRESSIVE STRENGTH SHALL BE 5000 PSI AFTER ONE DAY AND 10000 PSI AFTER 28 DAYS. GROUT SHALL BE FREE OF GAS PRODUCING OR AIR RELEASING AND OXIDIZING AGENTS AND CONTAIN NO CORROSIVE IRON, ALUMINUM OR GYPSUM.
22. PROVIDE CONCRETE GROUT - NOT MORTAIR - FOR REINFORCING MASONRY LINTEL AND BOND BEAMS WHERE INDICATED ON DRAWINGS OR AS SCHEDULED.
23. TOLERANCE FOR ANCHOR RODS AND OTHER EMBEDDED ITEMS SHALL BE PER THE AISC CODE OF STANDARD PRACTICE SECTION 7.5.
24. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT ALL COLUMN, WALL, SLAB, OR BEAM EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

HERB N. SELF REGISTERED 20370 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
8-10-2020

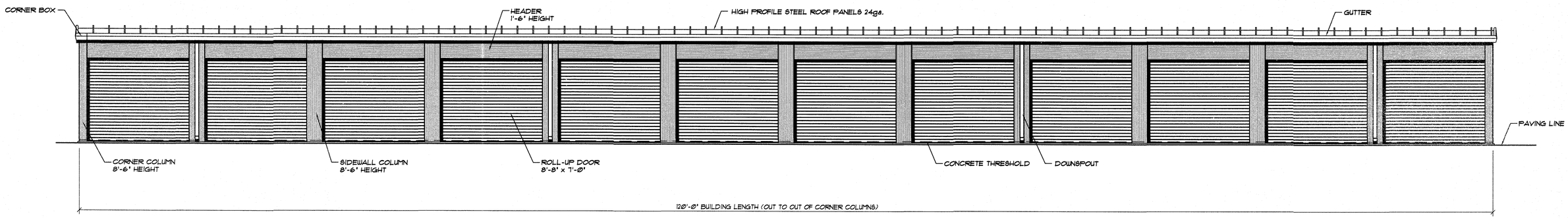
REVISIONS	DATE	BY

DATE: 8/06/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

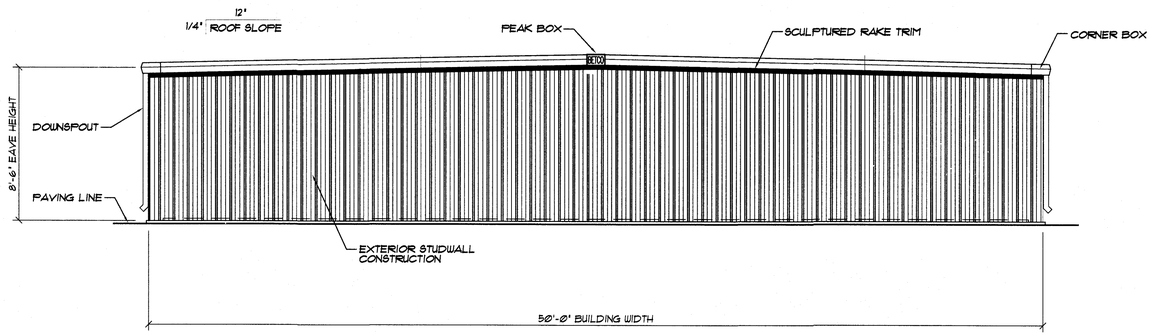
BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800) 654-7813

OWNER: AMERICAN SELF STORAGE
PROJECT NO.: WV20152
SHEET TITLE: BUILDING NOTES
DRAWING NUMBER: CS2 OF 2

RELEASED FOR CONSTRUCTION, Date: 8/10/2020, Time: 1:56 PM



A/S1 SIDEWALL ELEVATION . . . BUILDING "1"
SCALE: 1/4" = 1'-0"



B/S1 ENDWALL ELEVATION . . . BUILDING "1"
SCALE: 1/4" = 1'-0"

REED N. SELF
REGISTERED
20370
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
9-18-2020

REVISIONS	DATE	BY
⚠ REVISED BUILDING LENGTH	9/18/20	JCM

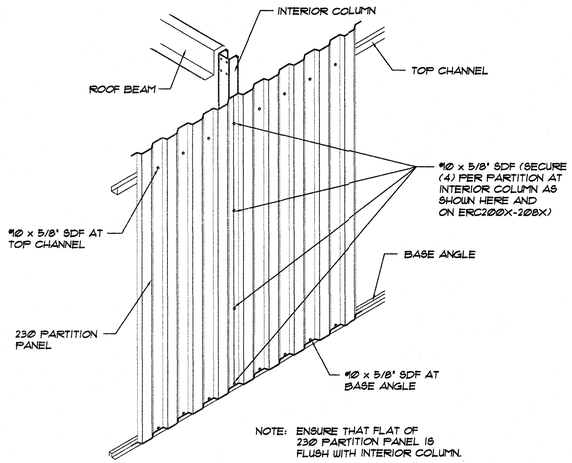
DATE: 8/06/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800) 654-7813

SHEET 1

ELEVATIONS & NOTES

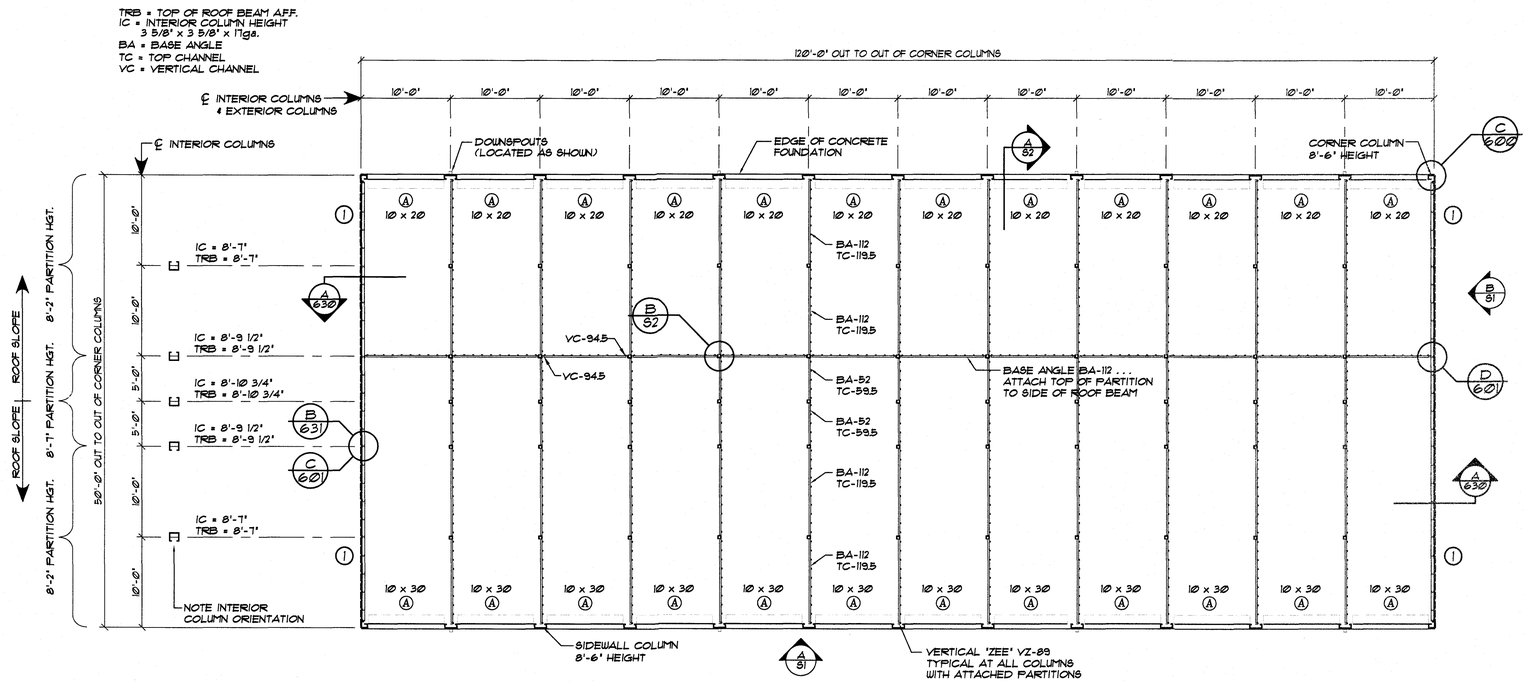
WV20152
DRAWING NUMBER:
S1 OF 2



B/S2 PARTITION ATTACHMENT @ INTERIOR COLUMNS

NOT TO SCALE

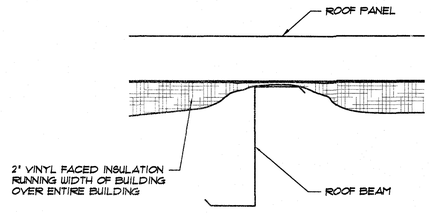
TRB = TOP OF ROOF BEAM AFF.
IC = INTERIOR COLUMN HEIGHT
3 5/8" x 3 5/8" x 17ga.
BA = BASE ANGLE
TC = TOP CHANNEL
VC = VERTICAL CHANNEL



FLOOR PLAN . . . BUILDING "1"

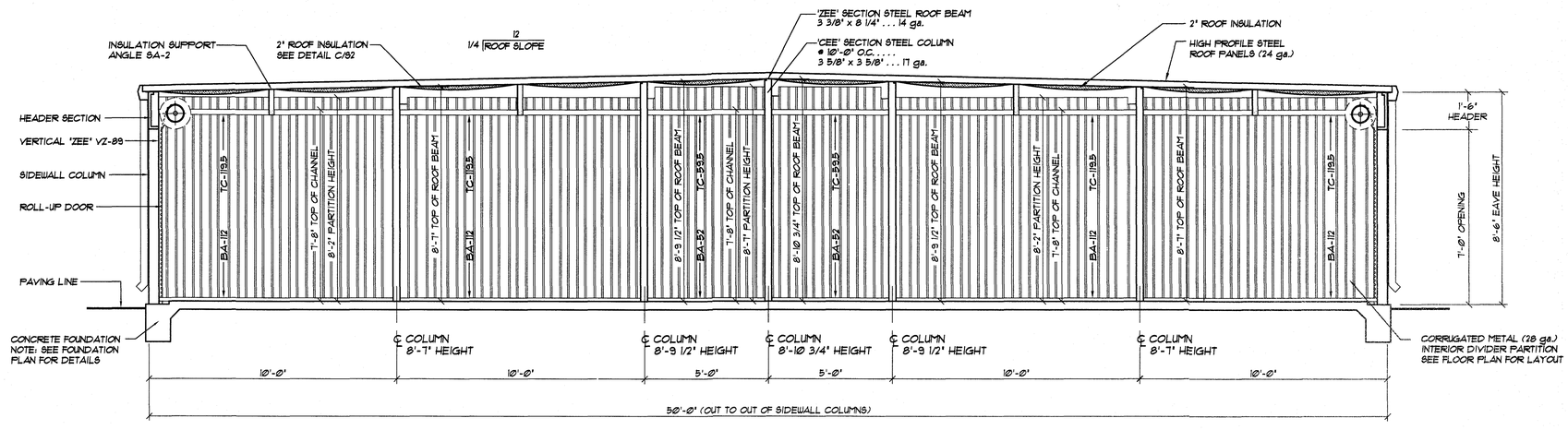
SCALE: 1/8" = 1'-0"

NOTE: BUILDING "1" IS PROVIDED W/(2) ADJUSTABLE CONTROL JOINT COLUMNS. 8'-6" HEIGHT



C/S2 INSULATION @ ROOF BEAM

NOT TO SCALE



A/S2 50'-0" CROSS SECTION . . . BUILDING "1"

SCALE: 3/8" = 1'-0"

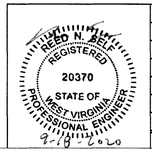
STUDWALL LEGEND	BUILDING "1"	
INTERIOR STUDWALL	EXTERIOR STUDWALL	
DESCRIPTION	UNINSULATED	INSULATED*
(1) EXTERIOR STUDWALL CONSTRUCTION AT FLAT SLAB (BLOCK @ MID-HGT.)	100 L.F.	0 L.F.

NOTE #1: SEE ERC610X FOR COMPLETE STUDWALL CONSTRUCTION DETAILS.
NOTE #2: SEE BLOCKING DETAIL A/631 ON ERC631X

DOOR SCHEDULE		
ID	DOOR SIZE	TYPE
(A)	8'-8" x 7'-0"	INTERIOR ROLL-UP

NOTE: . . . SEE OWNER FOR BUILDING ORIENTATION ON SITE

NOTE:
UNIT SIZES SHOWN ARE NOMINAL. ACTUAL CLEAR DIMENSIONS INSIDE UNITS MAY VARY ACCORDING TO FINAL DESIGN OF COMPONENTS.



REVISIONS	DATE	BY
⚠ REVISED BUILDING LENGTH	9/18/20	JCM

DATE: 8/06/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

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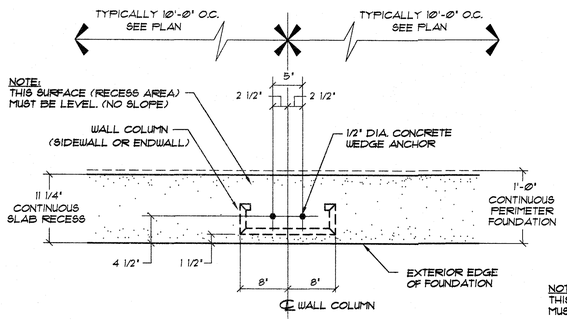
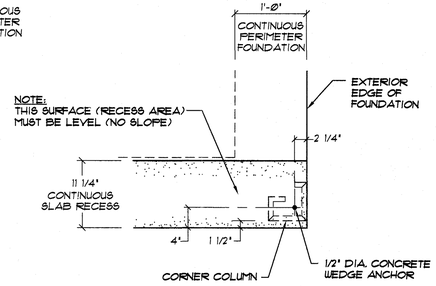
SHEET TITLE: FLOOR PLAN, CROSS SECTION, DETAILS & NOTES

DRAWING NUMBER: S2 OF 2



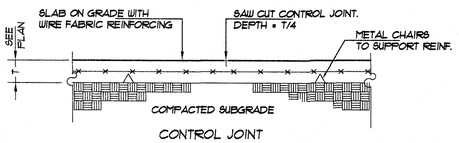
D/F1 TYPICAL WALL COLUMN WEDGE ANCHORS

NOT TO SCALE

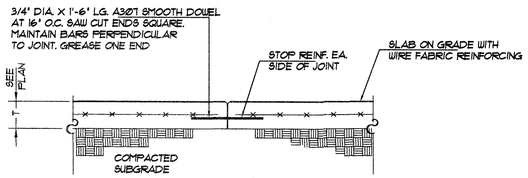


C/F1 CORNER WEDGE ANCHORS AT STUD WALL

NOT TO SCALE



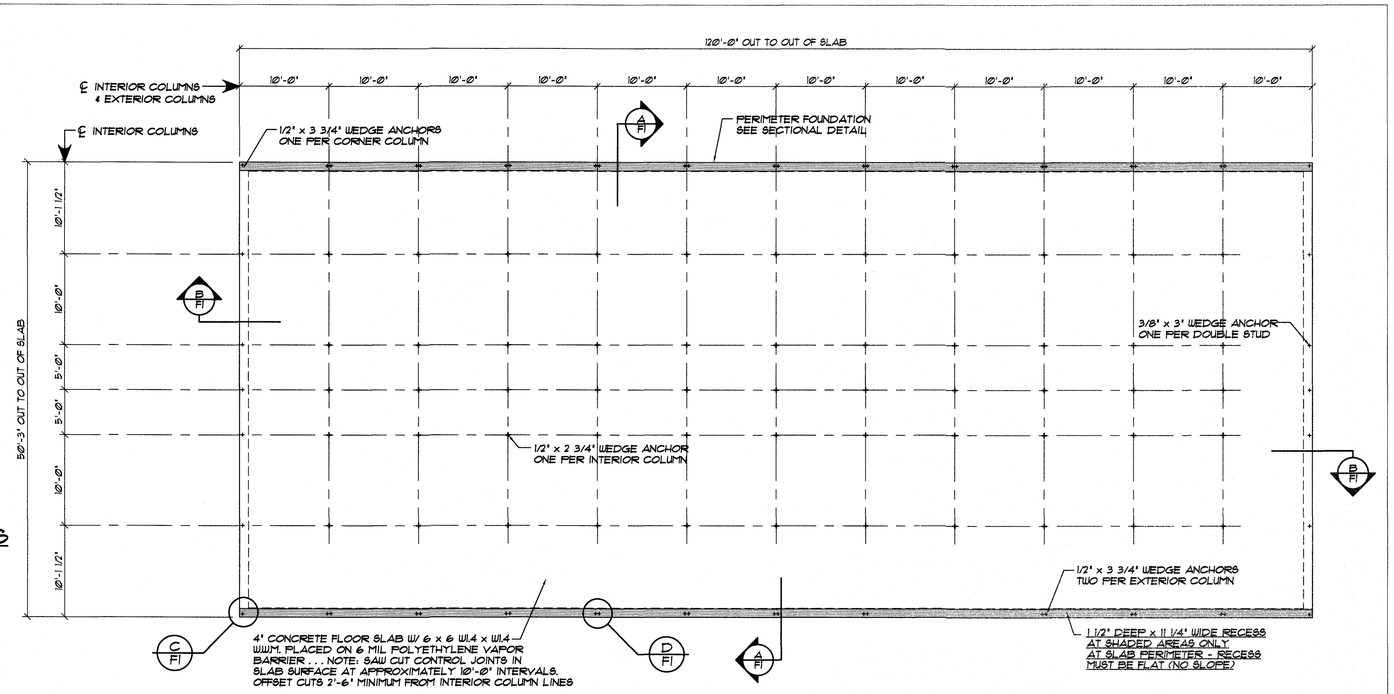
CONTROL JOINT



CONSTRUCTION JOINT

E/F1 CONTROL JOINT & CONSTRUCTION JOINT IN CONCRETE SLAB

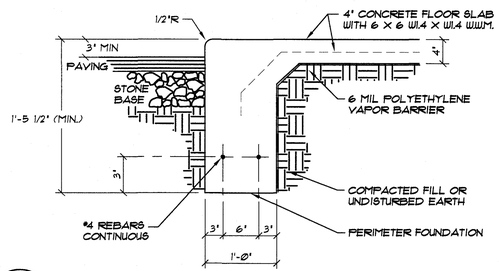
NOT TO SCALE



FOUNDATION PLAN . . . BUILDING "1"

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

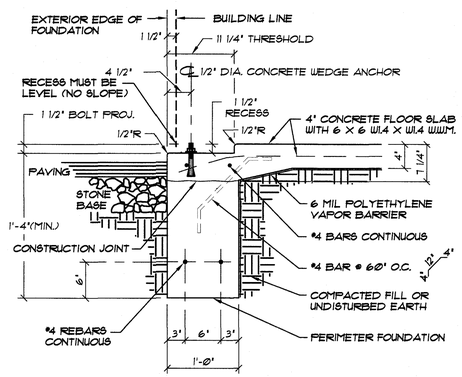
SAW CUT CONTROL JOINTS IN SLAB SURFACE AT APPROXIMATELY 10'–0" INTERVALS . . .
OFFSET CUTS 2'–6" MINIMUM FROM INTERIOR COLUMN LINES.



B/F1 PERIMETER FOUNDATION SECTION AT EXTERIOR STUDWALL

(MONOLITHIC CONCRETE PLACEMENT)

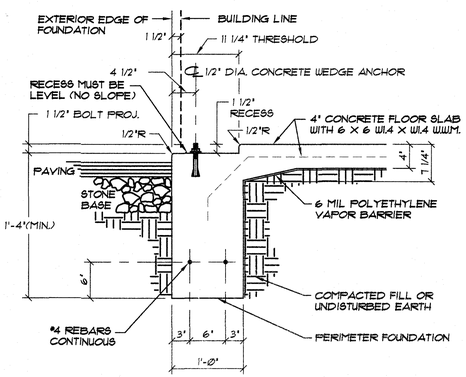
NOT TO SCALE



A/F1 ALTERNATE PERIMETER FOUNDATION SECTION

(TWO STAGE CONCRETE PLACEMENT)

NOT TO SCALE



A/F1 TYPICAL PERIMETER FOUNDATION SECTION

(MONOLITHIC CONCRETE PLACEMENT)

NOT TO SCALE

ACI 318 — TABLE 4.2.1
EXPOSURE CATEGORIES AND CLASSES

CATEGORY	SEVERITY	CLASS	CONDITION	
F FREEZING AND THAWING	NOT APPLICABLE	F0	CONCRETE NOT EXPOSED TO FREEZING–AND–THAWING CYCLES	
S SULFATE			WATER–SOLUBLE SULFATE (SO_4) IN SOIL, PERCENT BY WEIGHT	DISSOLVED SULFATE (SO_4) IN WATER, ppm
	NOT APPLICABLE	S0	SO_4 < 0.10	SO_4 < 150
P REQUIRING LOW PERMEABILITY	NOT APPLICABLE	P0	IN CONTACT WITH WATER WHERE LOW PERMEABILITY IS NOT REQUIRED	
C CORROSION PROTECTION OF REINFORCEMENT	MODERATE	C1	CONCRETE EXPOSED TO MOISTURE BUT NOT TO EXTERNAL SOURCES OF CHLORIDES	

NOTE: ABOVE REPRESENTS "ASSUMED" CONDITIONS BY ENGINEER. IF CONTRACTOR KNOWS OR HAS REASON TO BELIEVE OTHERWISE, ENGINEER SHALL BE NOTIFIED IN WRITING PRIOR TO CONSTRUCTION.

REFERENCE ACI 318 – TABLE 4.3.1 FOR REQUIREMENTS FOR CONCRETE BY EXPOSURE CLASS.

NOTE: . . . SEE OWNER FOR BUILDING ORIENTATION ON SITE

NOTE:
WEDGE ANCHORS ARE PROVIDED BY BETCO.
EMBEDDED ANCHOR BOLTS IN SLAB ARE
NOT REQUIRED BY BUYER.

NOTE TO OWNER / CONTRACTOR:

DO NOT CUT SAW JOINTS ALONG COLUMN LINES. DOING SO WILL REDUCE THE STRUCTURAL CAPACITY OF THE BUILDING ANCHORAGE TO THE CONCRETE AND MAY RESULT IN ADDITIONAL MATERIAL AND LABOR CHARGES. SAW CUTS MUST BE OFFSET 2'-6" MINIMUM FROM COLUMN LINES.

REED N. SEE
REGISTERED
20370
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
9-18-2020

REVISIONS	DATE	BY
⚠ REVISED BUILDING LENGTH	9/18/20	JCM

DATE: 8/06/20
DRAWN BY: K. MACLAY
SCALE: AS NOTED
APPROVED BY:

BETCO
228 COMMERCE BLVD.
STATESVILLE, NC 28625
(800) 654-7813

SHEET TITLE: FOUNDATION PLAN, DETAILS & NOTES

DRAWING NUMBER: F1 OF 1

RELEASED FOR CONSTRUCTION, Date: 9/18/2020, Time: 10:37 AM


2018
2016
2014

D-Series Size 0
LED Area Luminaire

Buy American

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements

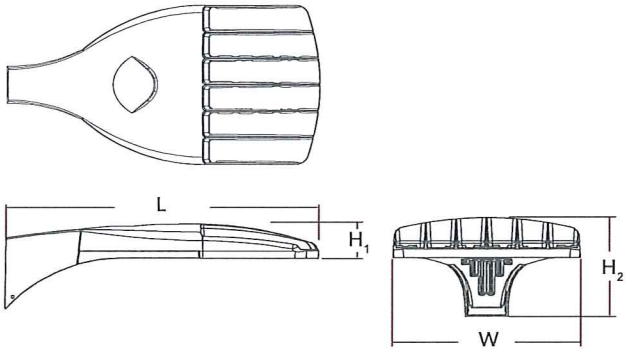
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA:	0.95 ft² (.09 m²)
Length:	26" (66.0 cm)
Width:	13" (33.0 cm)
Height$_1$:	3" (7.62 cm)
Height$_2$:	7" (17.8 cm)
Weight (max):	16 lbs (7.25 kg)



Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	**Forward optics** P1 P5 P2 P6 P3 P7[1] P4[1] **Rotated optics** P10[2] P12[2] P11[2] P13[1,2]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[3] T5S Type V short[3] T5M Type V medium[3] T5W Type V wide[3] BLC Backlight control[4] LCCO Left corner cutoff[4] RCCO Right corner cutoff[4]	MVOLT (120V-277V)[5,6] XVOLT (277V-480V)[7,8,9] 120[6] 208[6] 240[6] 277[6] 347[6] 480[6]	**Shipped included** SPA Square pole mounting RPA Round pole mounting[10] WBA Wall bracket[3] SPUMBA Square pole universal mounting adaptor[11] RPUMBA Round pole universal mounting adaptor[11] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[12]

Control options		Other options	Finish *(required)*
Shipped installed		**Shipped installed**	
NLTAIR2 nLight AIR generation 2 enabled[13,14]	PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[19,20]	HS House-side shield[22]	DDBXD Dark bronze
PIRHN Network, high/low motion/ambient sensor[15]	PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[19,20]	SF Single fuse (120, 277, 347V)[6]	DBLXD Black
PER NEMA twist-lock receptacle only (control ordered separate)[16]	PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[19,20]	DF Double fuse (208, 240, 480V)[6]	DNAXD Natural aluminum
PER5 Five-pin receptacle only (control ordered separate)[16,17]	PIRH1FC3V High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[19,20]	L90 Left rotated optics[2]	DWHXD White
PER7 Seven-pin receptacle only (leads exit fixture) (control ordered separate)[16,17]	FAO Field adjustable output[21]	R90 Right rotated optics[2]	DDBTXD Textured dark bronze
DMG 0-10V dimming extend out back of housing for external control (control ordered separate)[18]		DDL Diffused drop lens[22]	DBLBXD Textured black
		HA 50°C ambient operations[1]	DNATXD Textured natural aluminum
		BAA Buy America(n) Act Compliant	DWHGXD Textured white
		Shipped separately	
		BS Bird spikes[23]	
		EGS External glare shield	

WDGE2 LED
Architectural Wall Sconce

Catalog Number

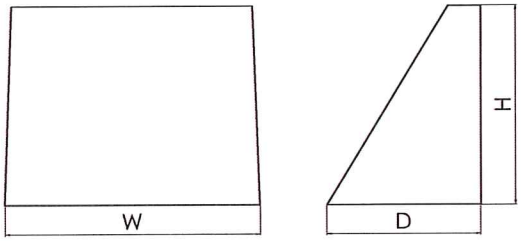
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth: 7″
Height: 9″
Width: 11.5″
Weight: (without options) 13.5 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 delivers up to 6,000 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

WDGE LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Sensor	Lumens (4000K)					
				P1	P2	P3	P4	P5	P6
WDGE1 LED	4W	--	--	1,200	2,000	--	--	--	--
WDGE2 LED	10W	18W	Standalone / nLight	1,200	2,000	3,000	4,500	6,000	--
WDGE3 LED	15W	18W	Standalone / nLight	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	--	--	Standalone / nLight	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE2 LED P3 40K 80CRI VF MVOLT DDBXD

Series	Package		Color Temperature		CRI	Distribution		Voltage	Mounting	
WDGE2 LED	P1[1]	P1SW	27K	2700K	80CRI	VF	Visual comfort forward throw	MVOLT	**Shipped included**	**Shipped separately**
	P2[1]	P2SW	30K	3000K	90CRI	VW	Visual comfort wide	347[3]	SRM Surface mounting bracket	AWS 3/8inch Architectural wall spacer
	P3[1]	P3SW	35K	3500K				480[3]		BBW Surface-mounted back box
	P4[1]	Door with small window (SW) is required to accommodate sensors. See page 2 for more details.	40K	4000K						PBBW Premium surface-mounted back box (top, left, right conduit entry)
	P5[1]		50K[2]	5000K						

Options

E4WH	Emergency battery backup, CEC compliant (4W, 0°C min)
E10WH	Emergency battery backup, CEC compliant (10W, 5°C min)
E20WC	Emergency battery backup, CEC compliant (18W, -20°C min)
PE[4]	Photocell, Button Type
DS[5]	Dual switching (comes with 2 drivers and 2 light engines; see page 3 for details)
DMG[6]	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)
BCE	Bottom conduit entry for premium back box (PBBW). Total of 4 entry points.

Standalone Sensors/Controls (only available with P1SW, P2SW & P3SW)

PIR	Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.
PIRH	Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching
PIR1FC3V	Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.
PIRH1FC3V	Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.

Networked Sensors/Controls (only available with P1SW, P2SW & P3SW)

NLTAIR2 PIR	nLightAIR Wireless enabled bi-level motion/ambient sensor for 8-15' mounting heights.
NLTAIR2 PIRH	nLightAIR Wireless enabled bi-level motion/ambient sensor for 15-30' mounting heights.

See page 4 for out of box functionality

Finish

DDBXD	Dark bronze
DBLXD	Black
DNAXD	Natural aluminum
DWHXD	White
DSSXD	Sandstone
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white
DSSTXD	Textured sandstone

VCPG Ultimate LED
Parking Garage

Buy American

Catalog Number

Notes

Type

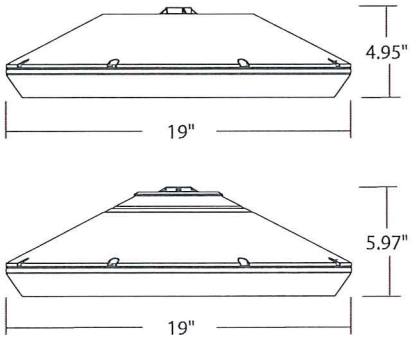
Hit the Tab key or mouse over the page to see all interactive elements

Specifications

Diameter: 19"

Height: 4.95" (6" with Up-Light)

Weight (max, with no options): 25 lbs



Introduction

The all new VCPGX LED (Visually Comfortable Parking Garage) luminaire is the ultimate solution for parking garage applications. The deep recessed lens design of VCPGX LED minimizes high angle glare, while its patent pending transition zone reduces the contrast ratio between the luminaire and the dark ceiling. The dedicated up-light module option further reduces this contrast, creating a more visually comfortable environment.

The VCPGX LED delivers up to 87% in energy savings when replacing 175W metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the VCPGX LED luminaire provides significant maintenance savings over traditional luminaires.

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: VCPGX LED V8 P3 40K 70CRI T5M MVOLT PM UPL2 DWHXD

VCPGX LED

Series	LED Light Engines	Package	Color temperature	Color Rendering Index	Distribution	Voltage		Mounting
VCPGX LED	V4 4 Light Engines V8 8 Light Engines	P1 P2 P3 P4 P5 P6 P7 (with V8 only)	30K 3000 K 35K 3500 K 40K 4000 K 50K 5000 K	70CRI 80CRI	T5M Type V, medium T5R[1] Type V, rectangular T5W Type V, wide T5E Type V entry LANE[1] Drive lane	MVOLT 347 480	For ordering with fuse 120 208 240 277 347 480	**Shipped included** PM Pendant mount standard (24-inch length supply leads) SRM Surface mount (24-inch length supply leads) ARM Arm mount (use RSXWBA accessory to mount to a wall) **Shipped separately** YK Yoke/trunnion mount[2]

Options

Shipped installed

UPL1	Up-Light: 500 lumens
UPL2	Up-Light: 700 lumens
E8WC	Emergency battery backup, CEC compliant (8W, -20°C min)[3,4,5]
E10WH	Emergency battery backup, CEC compliant (10W, 5°C min)[3,4,5]
HA	High ambient (50°C, only P1-P4)
SF	Single fuse (120V, 277V, 347V)
DF	Double fuse (208V, 240V, 480V)
SPD10KV	10KV Surge Pack
LDS36	36in (3ft) lead length
LDS72	72in (6ft) lead length
LDS108	108in (9ft) lead length
DMG	External 0-10V leads (no controls)[6]

Shipped Separately

BDS	Bird Shroud

Standalone Sensors/Controls

PIR	Motion/ambient sensor for 8-15' mounting heights
PIRH	Motion/ambient sensor for 15-30' mounting heights
PIR3FC3V	Motion/ambient sensor for 8-15' mounting heights, pre programmed to 3fc and 35% light output
PIRH3FC3V	Motion/ambient sensor for 15-30' mounting heights, pre programmed to 3fc and 35% light output
PIR3FC3V924	UL924 Listed motion/ambient sensor for emergency circuit for 8-15' mounting heights, pre programmed to 3fc and 35% light output[7]
PIRH3FC3V924	UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre programmed to 3fc and 35% light output[7]

Networked Sensors/Controls

NLTAIR2 PIR	nLIGHT AIR Wireless enabled motion/ambient sensor for 8-15' mounting heights
NLTAIR2 PIRH	nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights
NLTAIR2 PIR924	nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 8-15' mounting heights[8]
NLTAIR2 PIRH924	nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 15-30' mounting heights[8]

Finish *(required)*

DWHXD	White
DNAXD	Natural aluminum
DDBXD	Dark bronze
DBLXD	Black

INFORMATION

UNIT COUNT	AVG SF	NET SF	GROSS SF	UTILIZATION %
523	223	116480	130150	89

SPACES

Bldg/Flr ID	Size	SQ. FT
BUILDING# 01	30X185	5550
BUILDING# 02	30X180	5400
BUILDING# 03	85X165	14025
BUILDING# 04	30X325	9750
BUILDING# 05	30X325	9750
BUILDING# 06	30X325	9750
BUILDING# 07	30X300	9000
BUILDING# 08	30X240	7200
CANOPY # 01	84X206	17304
CANOPY # 02	84X315	26460
CANOPY # 03	84X190	15960
		130149

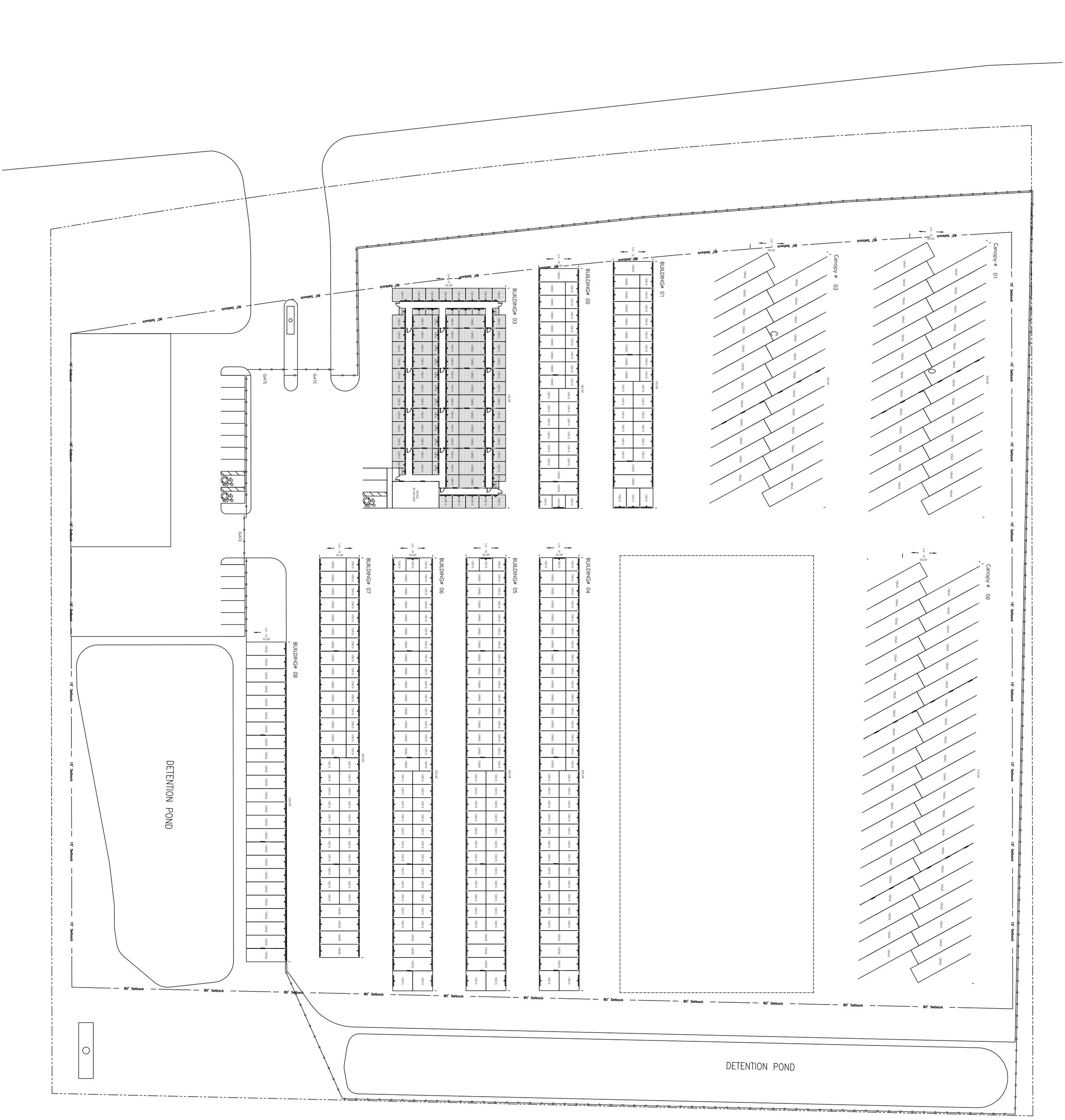
UNITS

TYPE	QTY	ID	SF	TTL SF	SF %	Unit %
Canopy.	92	12X45	540	49680	38.2	17.6
	92			49680		
Ext. Access	88	10X10	100	8800	6.8	16.8
	121	10X15	150	18150	13.9	23.1
	76	10X20	200	15200	11.7	14.5
	6	15X15	225	1350	1	1.1
	43	10X30	300	12900	9.9	8.2
	334			56400		
Int. Access	4	5X5	25	100	0.1	0.8
	19	5X10	50	950	0.7	3.6
	48	10X10	100	4800	3.7	9.2
	13	10X15	150	1950	1.5	2.5
	13	10X20	200	2600	2	2.5
	97			10400		
	523			116480		

DOORS

TYPE	Roll Doors							Swing		Addt'l	TTL
	3'	4'	5'	8'	9'	10'	12'	14'	15'	16'	RH	LH		
Canopy.	-	-	-	-	-	-	-	-	-	-	-	-	-	92
														92
Ext. Access	-	-	-	X	-	-	-	-	-	-	-	-	X	19
	-	-	-	X	-	-	-	-	-	-	-	-	-	315
														334
Int. Access	X	-	-	-	-	-	-	-	-	-	-	-	-	8
	-	-	-	X	-	-	-	-	-	-	-	-	-	89
														97
														523

NOTE:
THIS IS A CONCEPTUAL SITE DESIGN ONLY AND IS SUBJECT TO ALL APPLICABLE LOCAL REGULATIONS, CODE PROVISIONS, ENGINEERING REQUIREMENTS AND SITE CONDITIONS. THIS WAS PREPARED WITH THE BEST INFORMATION AVAILABLE TO BETCO, INC. THERE MAY BE ANY VARIATIONS OF ACTUAL SITE CONDITIONS, PROPERTY SIZE, OR ADDITIONAL REQUIREMENTS WILL AFFECT THE FINAL FINISHED PROJECT. THESE VARIATIONS WILL AFFECT THE FINAL PROJECT LOCATION AND MAY REQUIRE VARIATIONS TO THE LAYOUT. IT IS THE RESPONSIBILITY OF BETCO, INC. REVIEW THESE PLANS CAREFULLY.



STORAGE^3

128 North Center Street
Adrian, MI 49221

DATE: 6/23/2022
DRAWN BY: S3
SCALE: 7/256" = 1'

BETCO

P.O. BOX 1650 STATESVILLE, NC 28687
(800) 654-7813

PROJECT NAME:
Self Storage Facility
PROJECT ADDRESS:
US23 - Hartland MI
OWNER:

SHEET TITLE:
Site Plan

DRAWING NUMBER:
(1)

D:\BATDRIVE\BETCO\2022\05.03.22 BM HARTLAND MI\06.23.22 BM HARTLAND MI.DWG

STORAGE³
128 North Center Street
Adrian, MI 49221

DATE	6/23/2022
DESIGN BY	S3
SCALE	3/128" = 1'

BETCO
P.O. BOX 1650 STATESVILLE, NC 28687
(800) 654-7813

PROJECT NAME: Self Storage Facility
PROJECT ADDRESS: US23 - Hartland MI
OWNER:
SHEET TITLE: Building Plan
DRAWING NUMBER: (2)

STORAGE³ 128 North Center Street Adrian, MI 49221	DATE: 6/23/2022 DRAWN BY: S3 SCALE: 15/256" = 1'	BETCO P.O. BOX 1650 STATESVILLE, NC 28687 (800) 654-7813	PROJECT NAME: Self Storage Facility PROJECT ADDRESS: US23 - Hartland MI OWNER: SHEET TITLE: Building Plan D:\BATDRIVE\BETCO\2022\05.03.22 BM HARTLAND MI\06.23.22 BM HARTLAND MI.DWG

DRAWING NUMBER: (3)

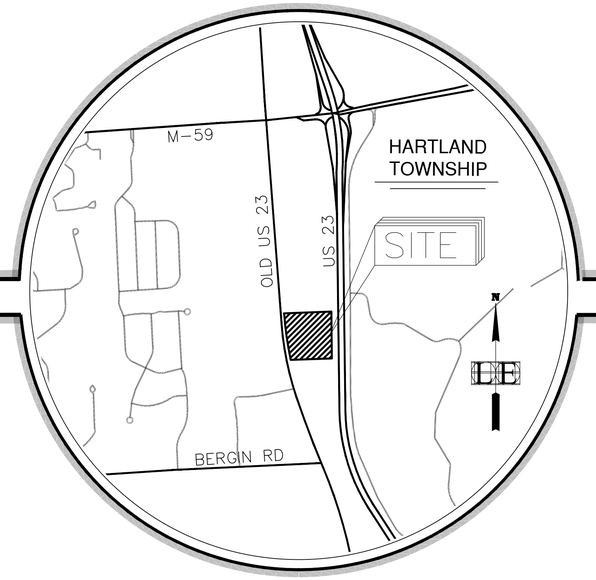
PRELIMINARY SITE PLAN FOR

OLD US 23 MINI-STORAGE

OLD US 23

TAX ID: 08-28-300-023

HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN



LOCATION MAP

NOT TO SCALE

PARKING CALCULATIONS

REQUIRED PARKING

MINI OR SELF STORAGE WAREHOUSE = 6 SPACES MINIMUM

PROVIDED PARKING

TOTAL SPACES PROPOSED: = 6 SPACES
INCL/1 BARRIER FREE SPACE

SITE DATA TABLE

	REQUIRED	PROVIDED
LOT AREA	40,000 SFT (min)	11.90 AC. (518,484 SFT)
WIDTH	120 FT (min)	
MAXIMUM LOT COVERAGE:		
BUILDINGS	75% (max)	130,922 SF / 518,484 SF = 25%
BUILDING SETBACKS:	REQUIRED	PROVIDED
FRONT	80 FT (min)	80 FT
REAR	50 FT (min)	86.57 FT
SIDE		
NORTH (ZONED LI)	15 FT (min)	33.18 FT
SOUTH (ZONED LI)	15 FT (min)	142.08 FT
BUILDING DATA:	REQUIRED	PROVIDED
BUILDING HEIGHT	35 FT MAX	

GENERAL NOTES

1. Property is zoned: LI, Light Industrial
2. Site Use: Mini Storage
3. Contractor is responsible for protecting all existing and proposed utilities from damage during all stages of construction.
4. The engineer and applicable agency must approve, prior to construction, any alteration, or variance from these plans.
5. Barrier Free parking spaces shall be marked with above grade sign in accordance with current ADA standards.
6. All construction shall be performed in accordance with the current standards and specifications of the Hartland Township and Livingston County.
7. The contractor shall contact Hartland Township 72 hours before beginning any construction.
8. Three working days prior to any excavation, the Contractor shall telephone MISS DIG (800-482-7171) for the location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. It shall be the Contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities which might affect this job.

LEGAL DESCRIPTION

(per Warranty deed recorded in Liber 4315, Page 235, LCR)

Parcel 2:

Commencing at the South 1/4 corner of Section 28, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence North 89 degrees 11 minutes 14 seconds West 714.82 feet along the South line of said Section 28 to a point located on the East Right of Way line of Old US-23 Highway (120 feet wide); thence Northwesterly along said East Right of Way line of Old US-23 in the following two courses; North 17 degrees 33 minutes 35 seconds West 806.58 feet; Northwesterly 904.94 feet in the Arc of a curve to the right, Radius 5669.65 feet, Central Angle 09 degrees 08 minutes 42 seconds, Chord North 12 degrees 59 minutes 14 seconds West 903.98 feet to the point of beginning; thence continuing Northwesterly along said Right of Way 740.90 feet in the arc of a curve to the right, Radius 5669.65 feet, Central Angle 07 degrees 29 minutes 14 seconds, Chord North 04 degrees 40 minutes 15 seconds West 740.37 feet; thence South 88 degrees 42 minutes 49 seconds East 743.40 feet to the West Right of Way of US-23 Limited Access Expressway; thence South 02 degrees 41 minutes 03 seconds West 736.59 feet along said West Right of Way line of US-23 Limited Access Expressway; thence North 88 degrees 42 minutes 49 seconds West 648.59 feet to the point of beginning, being a part of the Southwest 1/4 of Section 28 Town 3 North, Range 8 East and being subject to other easements and restrictions of record, if any.

Tax Item No. 08-28-300-023

UTILITY DISCLAIMER

811 Know what's **below.** **Call** before you dig.

Utilities as shown indicate approximate location of facilities only, as described by the various companies and no guarantee is given either as to the completeness or accuracy thereof. Contractor shall call "MISS DIG" at 811 or 1-800-482-7171 prior to the start of construction. Electric, gas, phone and television companies should be contacted prior to the commencement of field activities.

SHEET INDEX

LEGEND

	EXISTING	PROPOSED
SPOT GRADE	×000.00	×000.00
CONTOUR	000	000
SANITARY SEWER	SAN	SAN
STORM SEWER	ST	ST
WATER	W	W
OVERHEAD		
FENCE	X	X
GAS	GAS	GAS
ELECTRIC	E	E
DRAINAGE AREA BOUNDARY		
LIMITS OF DISTURBANCE		
SILT FENCE		SF
SIGN		
LIGHT POLE		
UTILITY POLE		
DECIDUOUS TREE		
GATE VALVE IN WELL		

LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC
9336 SASHABAW ROAD
CLARKSTON, MI 48348
PHONE: (248) 922-0789

OWNER

JERRAD BEAUCHAMP
872 N OLD US 23
BRIGHTON, MI 48843
PHONE: (810) 632-2000

ENGINEER

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S.23 , BRIGHTON, MI 48114
www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

OLD US 23 MINI-STORAGE
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/22

PROJECT No. 21117

SHEET 1 OF 11

DATE: JULY 25, 2022

ENGINEER'S SEAL

EXISTING CONDITIONS & REMOVALS

N

0' 50' 100' 150'

1" = 50 FEET

LEGEND

- WATER LINE — W —
- STORM SEWER — ST —
- SANITARY SEWER — SAN —
- SECTION CORNER
- FOUND IRON ROD
- SET IRON ROD
- FOUND MONUMENT
- TRAVERSE POINT-SET
- BENCHMARK
- FENCE — X —
- OVERHEAD UTILITIES
- GUY POST
- GUY WIRE
- UTILITY POLE
- LIGHT POLE
- ELECTRIC BOX
- ELECTRIC METER
- EXISTING GAS LINE (FLAGGED BY OTHERS) — GAS —
- GAS METER
- GAS SHUTOFF VALVE GSO
- COMMUNICATION BOX
- COMMUNICATION HANDHOLE
- COMMUNICATION MANHOLE
- COMMUNICATION LINE — T —
- SOIL TYPE BOUNDARY
- SOIL TYPE FrE
- STOP SIGN
- WARNING GAS PIPELINE
- TEMPLE ROAD
- NO PARKING
- 25 MPH

BENCHMARKS

BENCHMARK #300
BENCH TIE IN THE E. SIDE UTILITY POLE
ELEVATION= 978.57
(NAVD88)

BENCHMARK #301
BENCH TIE IN THE SE. SIDE OF UTILITY POLE
ELEVATION= 979.34
(NAVD88)

BENCHMARK #302
BENCH TIE IN THE NE. SIDE OF UTILITY POLE
ELEVATION= 980.91
(NAVD88)

BENCHMARK #303
NAIL IN THE N. SIDE OF A UTILITY POLE, LOCATED AT THE SW. CORNER OF PARCEL
ELEVATION= 978.50
(NAVD88)

TOPOGRAPHIC SURVEY NOTES:

1. A BOUNDARY SURVEY WAS NOT PERFORMED. PROPERTY LINES ARE BASED ON RECORD SURVEY BY MIDWESTERN CONSULTING (L.2594,P.737).
2. NORTHINGS AND EASTINGS SHOWN ON THIS DRAWING ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE INTERNATIONAL FEET (NAD83), ELEVATION BASED UPON NAVD88 DATUM FROM RTK GPS OBSERVATIONS.
3. WETLAND BOUNDARIES ARE BASED ON DELINEATION BY ASTI ENVIRONMENTAL AND PROVIDED BY OWNER.
3. ASTI ENVIRONMENTAL COMPLETED A SITE INSPECTION ON JULY 7, 2021, AND PROVIDED AN ASSESSMENT REPORT DATED JULY 12, 2021.
4. PER ASTI ASSESSMENT, WETLAND A IS REGULATED, AND WETLANDS B AND C ARE UNREGULATED.

USDA NRCS SOIL SURVEY SOIL TYPES:

BtA	BOYER-OSTHEMO LOAMY SANDS, 0 TO 2 PERCENT SLOPES
MoB	WAWASEE LOAM, 2 TO 6 PERCENT SLOPES
MoC	WAWASEE LOAM, 6 TO 12 PERCENT SLOPES
Pc	PEWAMO CLAY LOAM

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD US 23, BRIGHTON, MI 48114
PHONE: (810) 225-7100 FAX: (810) 225-7699
www.livingstoneng.com

Client
BEAUCHAMP
872 N OLD US 23
BRIGHTON, MI 48114
810-632-2000

OLD US 23 MINI STORAGE
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
EXISTING CONDITIONS & REMOVALS

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

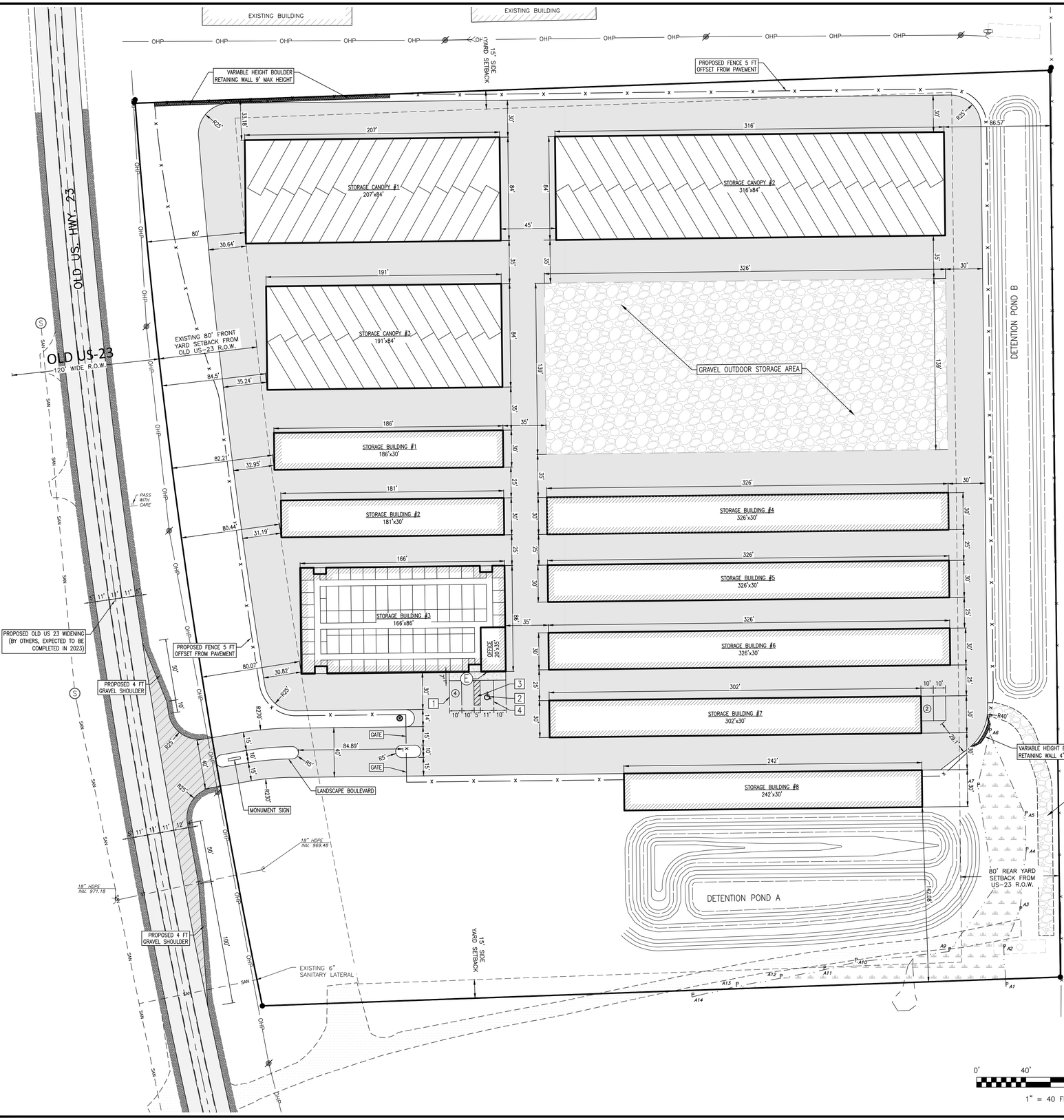
Drawn: MJB
Checked: TJZ
Approved: TJZ
Date: 7/25/2022

Job. no. 21117
Scale: Vertical: 1" = 50'
Horizontal:

2.0

FILE:C:\Users\mjbee\Dropbox (Liveng)\Projects\2021\21117 Beauchamp 11.81 Par Old US 23\03 DWGS\Prelim Site Plan\21117_02_Existing Conditions & Removals.dwg

SITE LAYOUT



PROPOSED PAVEMENT LEGEND:

- ASPHALT PAVEMENT — SEE DETAIL A, SHEET 7.0
- OLD US 23 ROW ASPHALT PAVEMENT — SEE DETAIL, THIS SHEET
- GRAVEL PAVEMENT — SEE DETAIL B, SHEET 7.0
- CONCRETE PAVEMENT / SIDEWALKS — SEE DETAIL C, SHEET 7.0

KEYED PAVEMENT MARKINGS:

1. 4" SINGLE SOLID LINE, WHITE
2. PAINTED INTERNATIONAL SYMBOL OF ACCESSIBILITY, BLUE ADA COMPLIANT
3. 4" SINGLE SOLID LINES, BLUE, 45° CROSS HATCH PATTERN (2' O.C.) WITH BORDER, ADA COMPLIANT
4. 4" SINGLE SOLID LINE, BLUE

ADA RAMP KEYED NOTES:

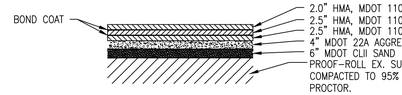
- R — ADA COMPLIANT RAMP
- L — ADA COMPLIANT RAMP LANDING AREA

KEYED NOTES:

- (E) BARRIER FREE SIGN WITH R7-8, SEE DETAIL E ON SHEET 7.0
- (F) CURB FACE WALK AT PROPOSED PAVEMENT, SEE DETAIL F ON SHEET 7.0

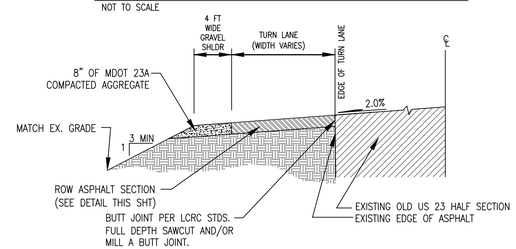
GENERAL NOTES:

1. ALL UTILITY COMPANIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION AND ALL UTILITIES LOCATED. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO ENGINEER FOR RESOLUTION PRIOR TO COMMENCING CONSTRUCTION.
2. ALL SIDEWALK RAMPS TO MEET CURRENT ADA GUIDELINES AND SPECIFICATIONS.
3. ALL DIMENSIONS TO CURB ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED.
4. UNDERGROUND ELECTRIC & GAS CONNECTION WILL BE PROVIDED AS DETERMINED BY UTILITY COMPANY.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH HARTLAND TOWNSHIP & LIVINGSTON COUNTY STANDARDS AND SPECIFICATIONS.
6. ALL WORK DONE IN THE RIGHT-OF-WAY SHALL BE DONE IN CONFORMANCE WITH CURRENT LIVINGSTON COUNTY ROAD COMMISSION STANDARDS AND PERMIT PROVISIONS.



R.O.W ASPHALT PAVEMENT SECTION

NOT TO SCALE



OLD US 23 HALF CROSS SECTION

N.T.S.

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Client
BEAUCHAMP
872 N OLD US 23
BRIGHTON, MI 48114
810-632-2000

OLD US 23 MINI STORAGE
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
SITE LAYOUT

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

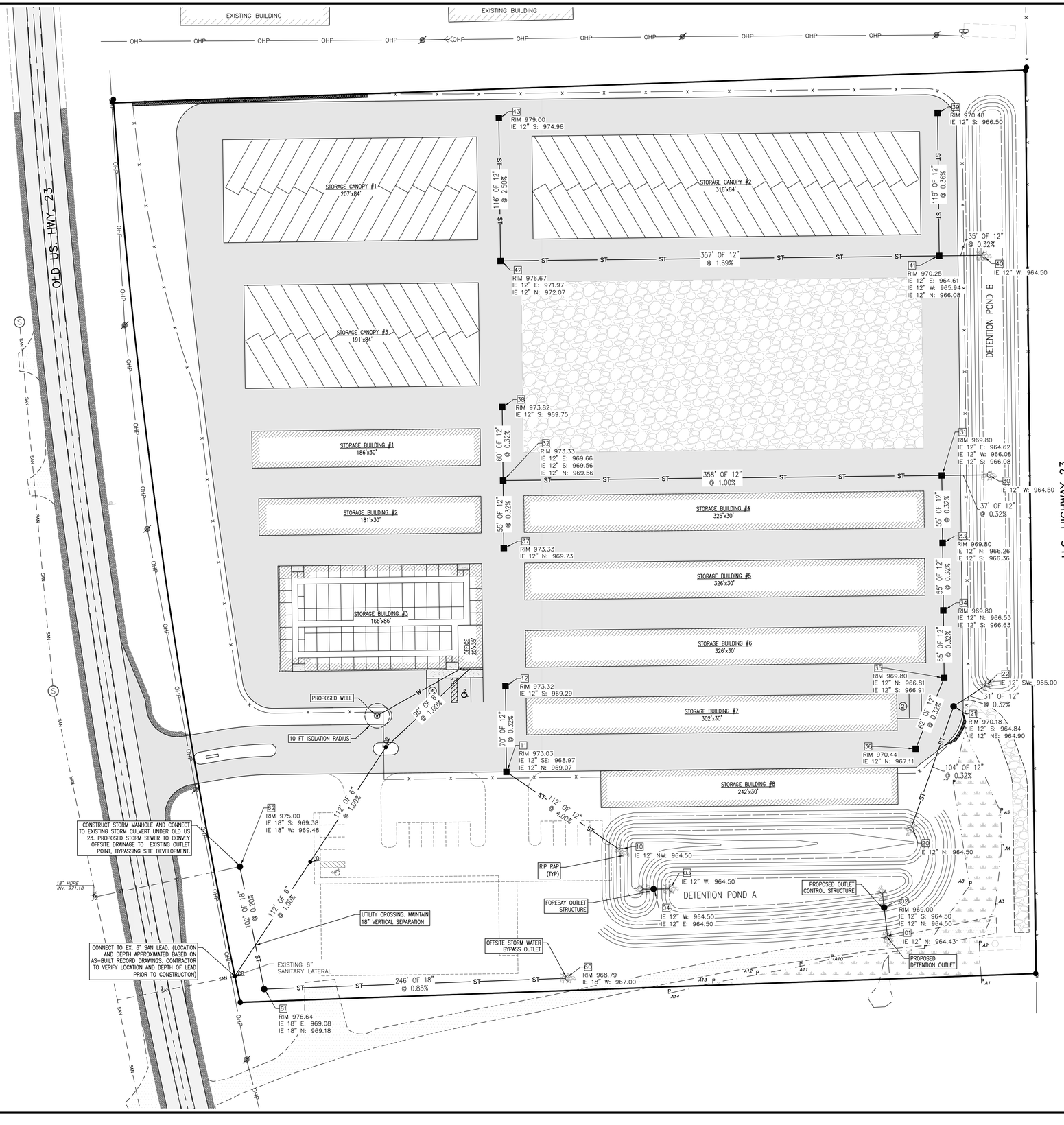
Drawn: MJB
Checked: TJZ
Approved: TJZ
Date: 7/25/2022

Job. no. 21117
Scale: Vertical: 1" = 40'
Horizontal:

3.0

FILE:C:\Users\mjbee\Dropbox (Liveng)\Projects\2021\21117 Beauchamp 1.81 Par Old US 23\03 DWGS\Preim Site Plan\21117_03.0_Site Layout.dwg

UTILITY PLAN



GENERAL UTILITY NOTES:

1. ALL SANITARY SEWER, STORM SEWER, & WATER MAIN SHALL BE DESIGNED AND CONSTRUCTED TO MEET HARTLAND TOWNSHIP STANDARDS.
2. ALL CONNECTIONS TO EXISTING UTILITIES SHALL BE DONE IN ACCORDANCE TO HARTLAND TOWNSHIP STANDARDS.
3. THE DEVELOPMENT SHALL BE SERVICED BY SANITARY SEWER AND WATER MAIN. ALL LOTS SHALL BE SERVICED BY INDIVIDUAL SANITARY AND WATER LEADS.
4. SEE SHEET 6 FOR PROPOSED DETENTION BASIN DETAIL AND STORM WATER MANAGEMENT PLAN.
5. HARTLAND TOWNSHIP STANDARD DETAILS SHALL BE USED FOR ALL APPLICABLE CONSTRUCTION ACTIVITIES. THESE STANDARD DETAILS WILL BE PROVIDED IN THE FINAL SITE PLAN PACKAGE.

STORM SEWER NOTES:

1. STORM SEWER TO BE RCP C76 CL IV UNLESS OTHERWISE NOTED.
2. ALL PIPE LENGTHS SHOWN ARE FROM ℄ TO ℄ OF STRUCTURE OR FROM ℄ OF STRUCTURE TO END OF FLARED END SECTION.
3. ALL STORM SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
4. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

SANITARY SEWER NOTES:

1. SANITARY LEAD SHALL BE 6" SCH 40 PVC PIPE LAID AT A MIN. 1% GRADE.
2. ALL PIPE LENGTHS SHOWN ARE FROM ℄ TO ℄ OF STRUCTURE.
3. ALL SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
4. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.
5. TREES AND OTHER LANDSCAPE PLANTINGS CANNOT BLOCK ACCESS TO ANY OF THE SANITARY SEWER MANHOLES THAT ARE LOCATED OFF THE STREET WITHIN THE SEWER UTILITY EASEMENT.

WELL/WATER SERVICE NOTES:

1. WATER SERVICE LEADS SHALL BE 2" DIA. TYPE "K" COPPER
2. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.
3. WELL SHALL BE INSTALLED ACCORDING TO LIVINGSTON COUNTY HEALTH DEPARTMENT STANDARDS AND PERMIT PROVISIONS.

LEGEND

EXISTING		PROPOSED	
WATER MAIN GATE VALVE & WELL, GATE VALVE & BOX, HYDRANT	12"w W	WATER MAIN GATE VALVE & WELL, GATE VALVE & BOX, HYDRANT	8"W W
SANITARY SEWER MANHOLE, CLEANOUT	12"s SAN	SANITARY SEWER MANHOLE, CLEANOUT	12"S SAN
STORM SEWER CATCH BASIN, MANHOLE	12"r ST	STORM SEWER CATCH BASIN, MANHOLE	12"R ST

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OLD US 23 MINI STORAGE
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
UTILITY PLAN

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

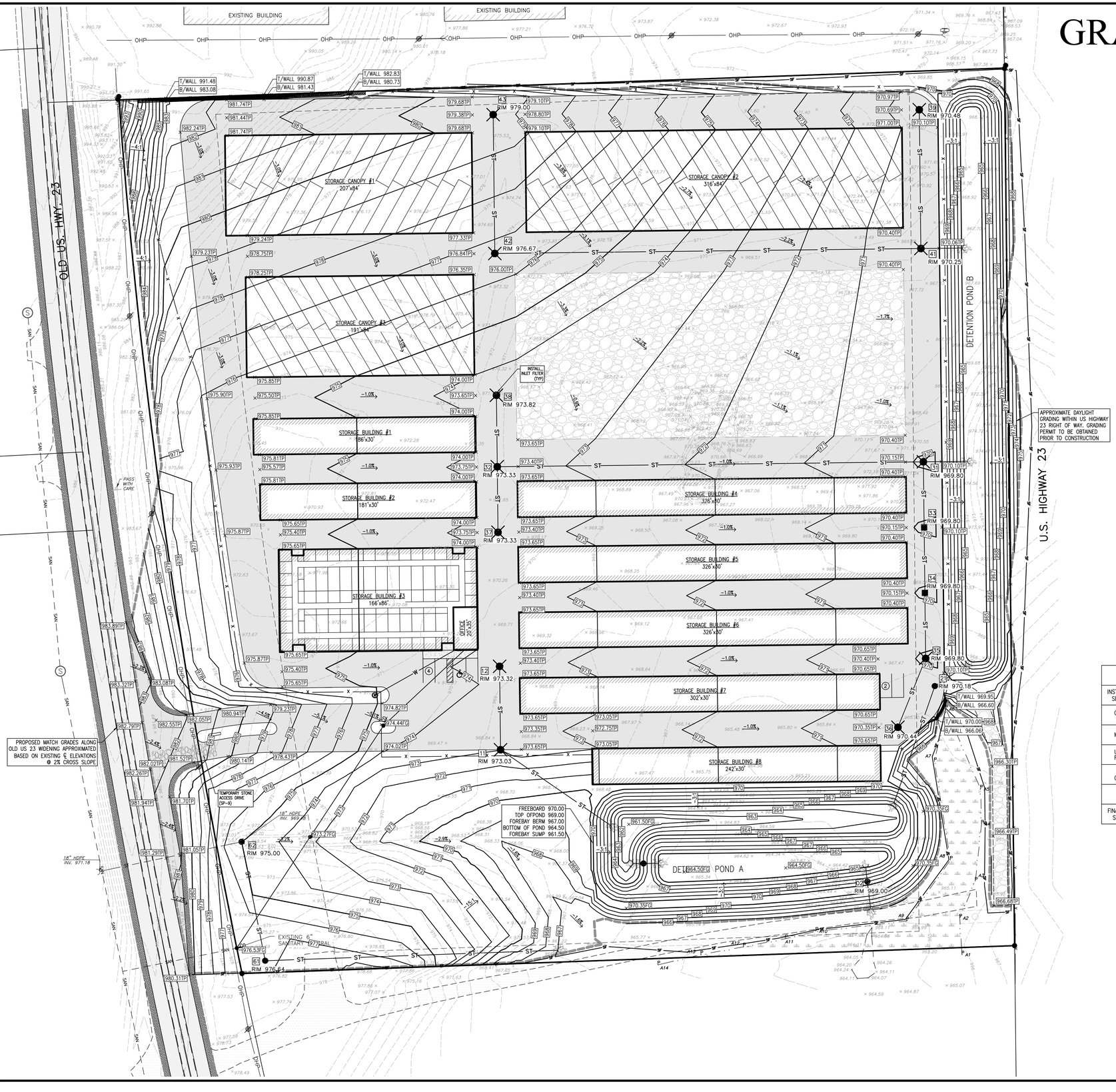
Drawn: MJB
Checked: TJZ
Approved: TJZ
Date: 7/25/2022

Job. no. 21117
Scale: Vertical: 1" = 40'
Horizontal:

4.0

FILE: C:\Users\mjbeu\Dropbox (Liveng)\Projects\2021\21117 Beauchamp 11.81 Par Old US 23\03 DWGS\Prelim Site Plan\21117_04.0_Utility Plan.dwg

GRADING & SESC PLAN



LEGEND

	EXISTING	PROPOSED
CONTOUR	— — 100 — —	100
LIMITS OF CLEARING/GRADING		
SILT FENCE		SF
CATCH BASIN FILTER		

SPOT GRADE ABBREVIATIONS LIST

TP	=	TOP OF PAVEMENT
TW	=	TOP OF WALK
EM	=	EDGE OF METAL
BC	=	BACK OF CURB
M	=	MATCH EXISTING GRADE
EX	=	EXISTING GRADE

TOTAL DISTURBED AREA
514,724 S.F. (11.82 AC.)

PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2023

ACTIVITY	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
INSTALL TEMPORARY SESC MEASURES	–								
CLEAR & GRUB		–							
MASS GRADING		–	–						
UTILITIES & FINAL GRADING			–	–					
BUILDING CONSTRUCTION				–	–	–			
PAVING							–		
FINAL STABILIZATION SEED & MULCH							–		

N

0' 40' 80' 120'

1" = 40' FEET

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HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
GRADING & SESC PLAN

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

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5.0

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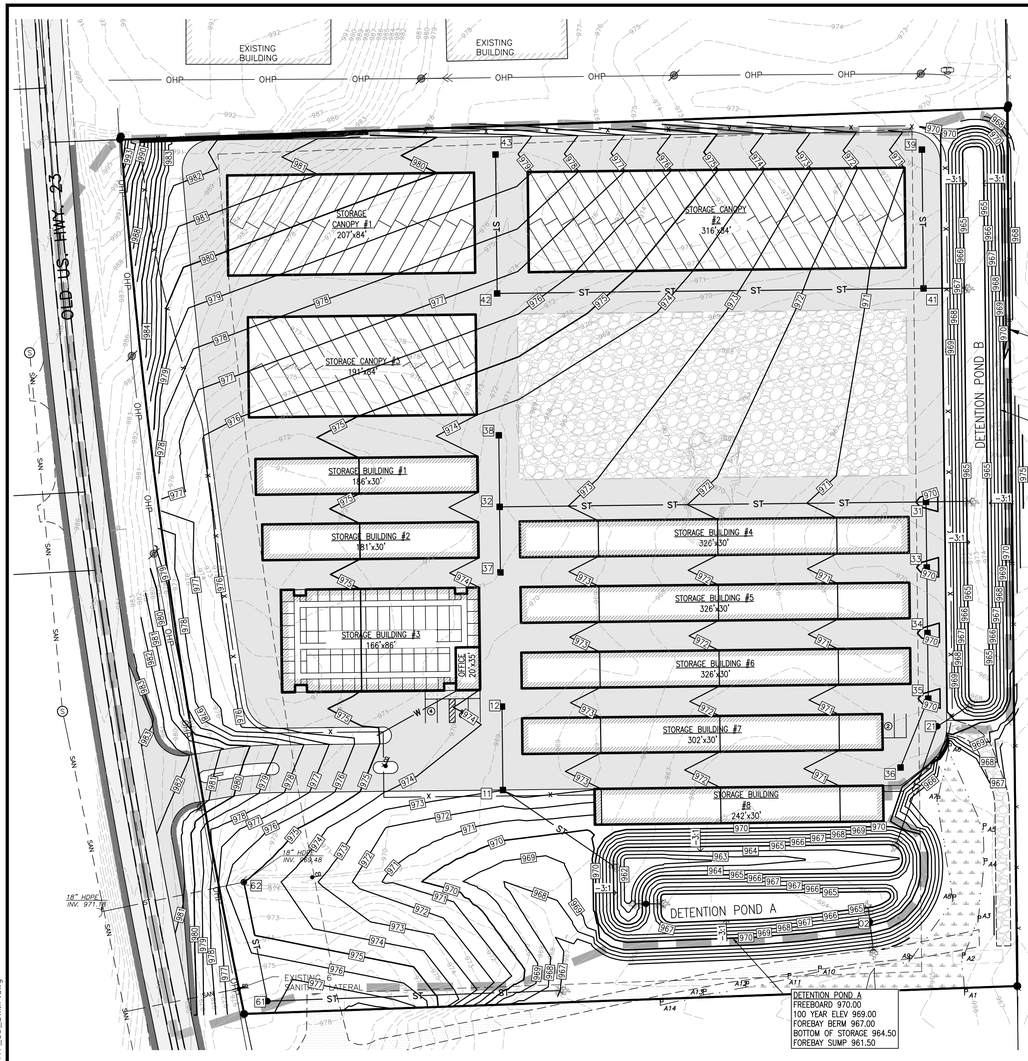
STORM WATER MANAGEMENT PLAN

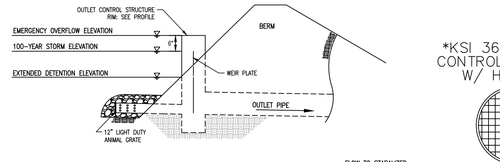


LEGEND

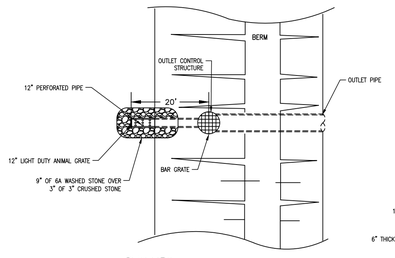
OVERALL DETENTION TRIBUTARY AREA

STORM STRUCTURE TRIBUTARY AREA

STORM STRUCTURE — R11
STORM SEWER DRAINAGE AREA — 0.24 AC.



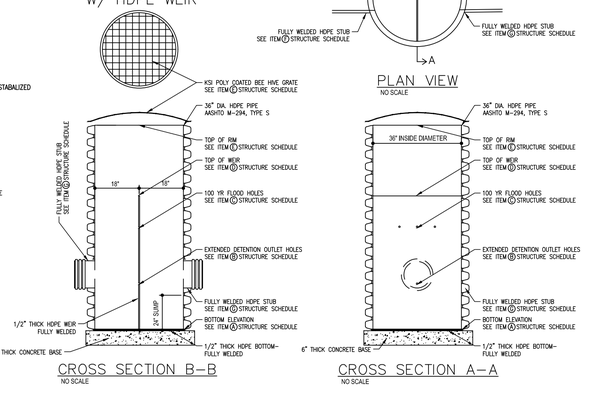
CROSS SECTION



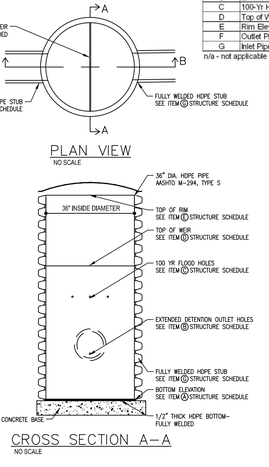
PLAN VIEW

FLOW TO STABALIZED OUTLET

*KSI 36" DIA. HDPE CONTROL STRUCTURE W/ HDPE WEIR



CROSS SECTION B–B
NO SCALE



PLAN VIEW
NO SCALE

CROSS SECTION A–A
NO SCALE

Outlet Structure Schedule

Item	Description	Size	Elev.	No. of Holes
A	Sump Elevation	n/a	962.50	n/a
B	Extended Detention	1"	964.50	8
C	100-Yr Hole(s)	2.75"	967.13	5
D	Top of Weir	n/a	968.69	n/a
E	Rim Elevation	n/a	969.50	n/a
F	Outlet Pipe Invert	12"	964.50	n/a
G	Inlet Pipe Invert	12"	964.50	n/a

n/a - not applicable

OUTLET STRUCTURE DETAIL

NOT TO SCALE

DETAIL PROVIDED BY THE FOLLOWING SUPPLIER:
KENNEDY SYSTEMS INC.(KSI) • 2111 SAGE LAKE ROAD • PRESCOTT, MICHIGAN 48756 • 800-699-4046
*OR ENGINEER APPROVED EQUAL

STORM WATER MANAGEMENT NARRATIVE

STORM WATER RUNOFF WILL BE COLLECTED WITH CATCH BASIN'S DISTRIBUTED THROUGHOUT THE PAVEMENT AND GREENSPACES, WHICH WILL CONVEY THE WATER THROUGH UNDERGROUND STORM SEWER TO SEPARATE DETENTION POND'S LOCATED ON THE EAST AND SOUTHEAST PORTIONS OF THE SITE. THE TWO ARE CONNECTED BY A STORM PIPE.

DETENTION VOLUME WAS CALCULATED USING THE LIVINGSTON COUNTY DRAIN COMMISSIONERS METHOD.

AN INFILTRATION TEST WAS NOT PERFORMED ON THE SITE.

AN OUTLET STRUCTURE IS BEING PROVIDED TO OUTLET WATER AT A RESTRICTED RATE INTO THE WETLAND AT THE SOUTH EAST CORNER OF THE SITE.

AN EMERGENCY OVERFLOW SPILLWAY IS BEING PROVIDED ADJACENT TO THE OUTLET POINT.

STORM WATER
DETENTION POND CALCULATIONS
Project: Old US 23 Mini Storage
Livingston Engineering Project No. 21117
Livingston County Drain Commission Method

Detention Volume Equation

$V = ((A_t + A_b)/2) \times H$

where, A_t = Area at top of storage elevation
A_b = Area at bottom of storage elevation
H = Depth of analysis

I. SITE DATA

A. Contributing Area, A = 11.93 Ac.

B. Weighted Runoff Coefficient:

	Area (A), Ac.	Coefficient (C)	A x C
Rooftop / Asphalt Area	7.57	0.90	6.81
Gravel Area	1.04	0.70	0.73
Water	0.92	1.00	0.92
Lawn/Landscaped Area	2.41	0.20	0.48
Totals:	11.93		8.94

Weighted C = 8.94 / 11.93 = 0.75

C. Variable Release Rate, Q_{VRR}

Q_{all} = = 0.15 cfs/acre

$Q_{VRR} = 1.1055 - 0.206 \ln(A)$ = 0.54 cfs/acre

II. DESIGN CALCULATIONS

1. Required Water Quality Volume

$V_{WQ} = 3{,}630 \times C \times A$ = 32,435 cf

2. Required Channel Protection Volume, V_{CP}

$V_{CP} = 4{,}719 \times C \times A$ = 42,166 cf

3. Extended Detention Volume, V_{ED}

$V_{ED} = 6{,}897 \times C \times A$ = 61,627 cf

4. Extended Detention Volume Discharge Rate, Q_{ED}

$Q_{ED} = V_{ED} / (48 \times 60 \times 60)$ = 0.36 cfs

5. 100 Yr. Storm Inlet Rate, Q_{100in}

where,
T_c = 21 min from storm sewer design
$I_{100} = 83.3018 / (T_c + 9.1747)^{0.8069}$ = 5.33 in/hr

$Q_{100in} = C \times A \times I_{100}$ = 47.63 cfs

6. 100 Yr. Storm Allowable Outlet Rate

$Q_{100all} = Qall \times A$ = 1.79 cfs

7. Storage Curve Factor

$R = 0.206 - 0.15 \times LN(Q_{all} / Q_{100in})$ = 0.698

8. 100 Yr. Storm Volume In

$V_{100in} = 18985 \times C \times A$ = 169,638 cf

9. 100 Yr. Storm Volume above outlet

where,
$V_{cp\ credit}$ = infiltration credit = - cf

$V_{100det} = V_{100in} \times R - V_{cp\ credit}$ = 118,437 cf

10. Required Detention Volume = greater of V100det or VED

V_{100} = 118,437 cf

11 Detention Volume Proposed

	Elev.	Area(sf)	Vol (cf)	Acc. Vol.(cf)
$Elev_b$ =	964.5	14,443		
	965.0	18,981	8,356	8,356
	966.0	24,807	21,894	30,250
	967.0	30,789	27,798	58,048
	968.0	36,476	33,633	91,681
	969.0	40,689	38,583	130,263
	Total:		130,263 CF	

The following interpolations determine the pond water elevations:

V_{ED} = (967.0 - 966.0) / (58,048 - 30,250) = (x - 966.0) / (61,627 - 30,250)

x = Elev V_{ED} = 967.13

V_{100} = (969.0 - 968.0) / (130,263 - 91,681) = (x - 968.0) / (118,437 - 91,681)

x = Elev V_{100} = 968.69

These yield pond water elevations of 967.13 for the Extended Detention,
and 968.69 for the 100 Yr. Storm Event

12 Required Forebay Volume = 15% of V_{wq}

$V_{fb} = V_{wq} \times 0.15$ = 4,865 cf

13 Forebay Volume Proposed

	Elev.	Area(sf)	Vol (cf)	Acc. Vol.(cf)
$Elev_b$ =	964.5	14,443		
	965.0	18,981	8,356	8,356
	966.0	24,807	21,894	30,250
	967.0	30,789	27,798	58,048
	Total:		58,048 CF	

The following interpolations determine the pond water elevations:

V_{fb} = (965.0 - 964.5) / (8,356 - 0) = (x - 964.5) / (4,865 - 0)

x = Elev Vfb = 964.79

This yields pond water elevations of 964.79 for the Forebay,

III. OUTLET STRUCTURE DESIGN

The Detention Pond will have a 2-stage outlet. This will consist of a control structure with an internal weir plate with a series of holes in two (2) tiers. The lower tier of holes will detain and release the extended detention volume over 48 hours. The top tier along with the lower tier will release the 100 year flood volume at the calculated 100-year allowable outlet rate. The perforated inlet pipe will be surrounded by a stone filter.

1. Extended Detention Outlet Design:

Where:

V_{ED} = 61,627 cf (calculated above)

$H_{ED} = V_{ED} / (4{,}800 \times h^{1/2})$

H_{ED} = Number of 1-inch dewatering holes

h = Total head on the orifices = 2.63 ft
Note: this equation consider the average head to be 0.4 times the total head

H_{ED} = 7.9 Holes

Use = **nine(9) 1"** hole(s) at Elev. = **964.5**

2. 100 yr Outlet Design:

This basin is designed to pass the 100-year storm event without overtopping the basin.

100 Yr. Storm Allowable Outlet Rate: Q_{100all} = 1.79 cfs

At the required 100-year detention volume elevation, the
nine(9) 1 " hole(s) designed for the extended detention outlet

Q_{100} = 0.62(# holes x hole area) x (2 x 32.2 x h)^0.5

Q_{100} = 0.62(9 x 0.0055) x (2 x 32.2 x 4.19)^0.5= 0.500 CFS

The remaining allowable outflow= 1.790 - 0.500 = 1.290 CFS

0.62(A)(2 x 32.2 x (968.69 - 967.13) ^ 0.5 = 1.290 CFS

A= 0.207 SF

Area of
2.75 " hole = 0.0412 SF

No. of 2.75 " hole(s) = 0.2072 / 0.0412 = 5.02 hole(s)

Therefore, use
five(5) 2.75 " hole(s) at Elev. = 967.13

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OLD US 23 MINI STORAGE
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
STORM WATER MANAGEMENT PLAN

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

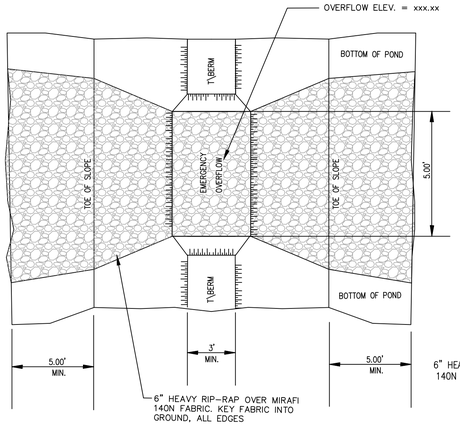
Drawn: MJB
Checked: TJZ
Approved: TJZ
Date: 7/25/2022

Job. no. 21117
Scale:
Vertical: 1" = 60'
Horizontal:

6.0

FILE: C:\Users\mjbea\Dropbox (Liveng)\Projects\2021\21117 Beauchamp 11.81 Por Old US 23\03 DWGS\Preim Site Plan\21117_06_SWMP.dwg

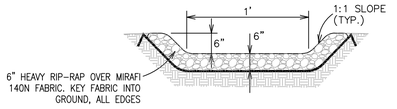
DETAILS & SESC NOTES



EMERGENCY SPILLWAY DETAIL

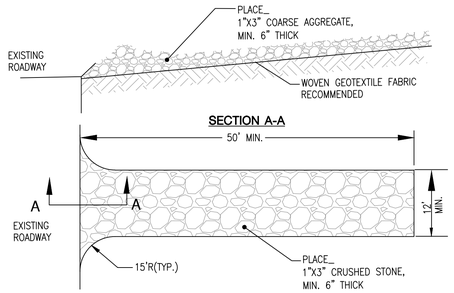
NOT TO SCALE

SPILLWAY NOTES:
1. CONNECT SPILLWAY TO END SECTION RIP RAP.
2. KEY GEOTEXTILE FABRIC INTO GROUND ON ALL EDGES.
3. INSTALL THE SPILLWAY DOWN THE SLOPE OF THE POND AND TERMINATE SPILLWAY WITH RIP RAP AT THE BOTTOM OF THE POND ELEVATION. RIP RAP TERMINATION TO MATCH THE END SECTION – RIP RAP DETAIL FOR A 12" PIPE.

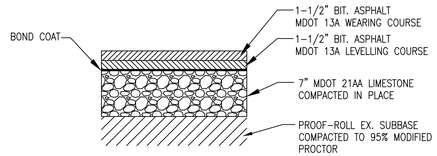


RIP RAP SPILLWAY

NOT TO SCALE

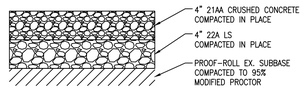


MUD TRACKING MAT DETAIL



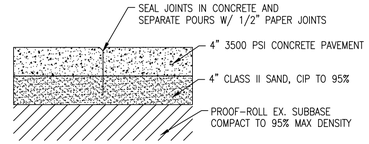
A ASPHALT PAVEMENT SECTION

NOT TO SCALE



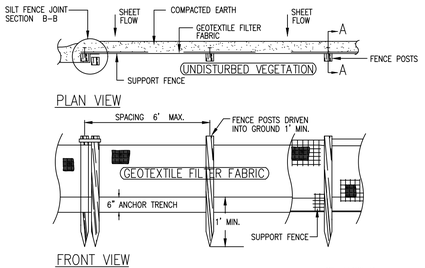
B HEAVY DUTY GRAVEL PAVEMENT SECTION

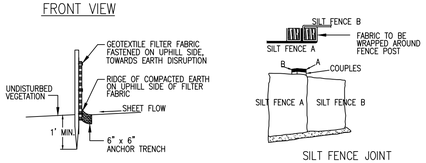
NOT TO SCALE



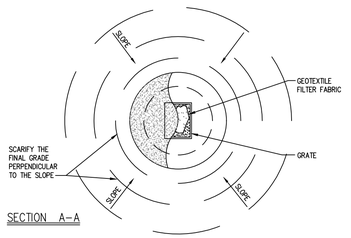
C CONCRETE SIDEWALK SECTION

** FOR USE IN SIDEWALK AREAS THAT DO NOT ABUT PAVEMENT**
NOT TO SCALE

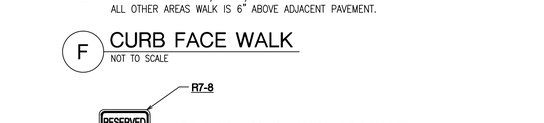




36" SILT FENCE



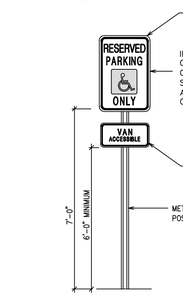
LOW POINT INLET FILTER (SI-2)



* NOTE: 0" IN AREAS WHERE T/P & T/W ARE FLUSH.
ALL OTHER AREAS WALK IS 6" ABOVE ADJACENT PAVEMENT.

F CURB FACE WALK

NOT TO SCALE



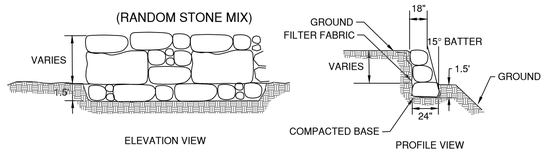
IF THIS INSTALLATION IS MADE AROUND THE PERIPHERY OF THE PARKING LOT, THE POST SHOULD BE A MINIMUM OF 3'-4' BEHIND FACE OF CURB OR SIDEWALK. IN SOME CASES, A NECESSARY AND/OR APPROPRIATE ALTERNATIVE WOULD BE TO HANG THE SIGN(S) DIRECTLY ON A BUILDING WALL.

SIGNAGE & PAVEMENT MARKING NOTES

1. ALL PARKING SPACES SHALL BE STRIPED WITH WHITE PAINT AND ALL BARRIER FREE PARKING SPACES SHALL BE STRIPED WITH BLUE PAINT SEC. 3b.18 OF THE M.M.U.T.C.D.
2. STANDARD PARKING SPACE WIDTH SHALL BE 9' WIDE MEASURED FROM FACE OF CURB.

E BARRIER FREE SIGN

NOT TO SCALE



F BOULDER RETAINING WALL

NOT TO SCALE

Livingston County Soil Erosion Control
Temporary Controls And Sequence of Construction

1. NOTIFY THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE 24 HOURS PRIOR TO THE START OF GRADE WORK.
2. IN ACCORDANCE WITH PUBLIC ACT NO. 53, OF 1974, THE PERMIT HOLDER SHALL CALL MISS DIG FOR STAKING AND LOCATING OF UTILITIES, AT LEAST 72 HOURS IN ADVANCE OF THE START OF ANY WORK
3. (IMPORTANT NOTICE) DETENTION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. INGRESS/EGRESS MUST HAVE LARGE CRUSHED ROCK TO REDUCE THE TRACKING OF SOIL ONTO THE PUBLIC TRAFFIC AREAS. SEE DETAIL ITEMS BELOW.
4. SILT FABRIC FENCE AS SHOWN ON PLANS SHALL BE PLACED ALONG PERIMETER ON ALL LOW LYING AREAS OF THE CONSTRUCTION SITE TO FILTER RUNOFF BEFORE LEAVING PROJECT SITE.
5. ALL TEMPORARY EROSION CONTROL DEVISES AS NOTED ON PLANS SHALL BE INSTALLED PRIOR TO START OF MASSIVE EARTH DISRUPTION.
6. PLAN DOES DENOTE A DETAILED EROSION CONTROL DEVICE TO RESTRICT TRACKING OF MATERIAL ONTO THE HIGHWAY. STONE DIAPERS SHALL BE INSTALLED AT ALL INGRESS/EGRESS AREAS OF THE SITE PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. DIAPERS SHALL BE OF CRUSHED STONE AND SHALL HAVE A MINIMUM LENGTH OF 75 LINEAR FEET.
7. TOPSOIL OR SOIL STORAGE AREAS SHALL BE SEEDED AND MULCHED OR MATTED WITH STRAW, IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION

DETENTION PONDS

8. DETENTION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
9. DETENTION POND OUTLETS SHALL BE OF THE STANDPIPE AND STONE FILTER SYSTEM, WITH TRASH SCREEN. OUTLET FLOW SHALL NOT EXCEED 0.20 CUBIC FEET OF WATER PER SECOND/PER ACRE. POND DIKES SHALL HAVE A MINIMUM OF ONE (1) FOOT OF FREEBOARD.
10. DIKES AND BERMS SHALL BE FREE OF ALL ORGANIC MATTER.
11. ALL UNIMPROVED DISTURBED AREAS SHALL BE STRIPPED OF TOPSOIL WHICH WILL BE STORED ONSITE FOR THE EXCAVATION STAGE. TOPSOIL PILES SHALL BE SEEDED AND MULCHED, OR MATTED WITH STRAW IN THE NON GROWING SEASON, IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION.
12. SOIL EROSION CONTROLS SHALL BE MONITORED DAILY BY THE ON-SITE ENGINEER, OR CONTRACTOR, WHICHEVER CASE APPLIES.
13. PRIOR TO COMPLETION OF THE PROJECT, STONE AROUND OUTLET STANDPIPE SHALL BE REFRESHED WITH CLEAN STONE.

SLOPES

14. SLOPES IN EXCESS OF 3 HORIZONTAL TO 1 VERTICAL SHALL NOT BE USED EXCEPT WITH A MECHANICAL DEVICE SUCH AS A RETAINING WALL, TERRACING, OR OTHER PRIOR APPROVED DEVICE. SLOPES STEEPER THAN 4 HORIZONTAL TO 1 VERTICAL SHALL HAVE STAKED MULCH BLANKETS OR SOD TO MINIMIZE THE CHANGE FOR EROSION.

STORM DRAINS

15. ALL STORM WATER STRUCTURES, CATCH BASINS AND/OR MANHOLES, IF BLOCK, SHALL BE PLASTERED ON BOTH THE INSIDE AND OUTSIDE OF THE STRUCTURES. GROUTING AND POINTING WILL BE NECESSARY AT THE CASTING AND STRUCTURE JOINT TO PREVENT LEAKAGE AND THE RESULTING SOIL MOVEMENT, AROUND THE STRUCTURE.
16. PAVEMENT ADJACENT TO STREET STORMWATER INLET STRUCTURES SHALL BE CUT OUT AFTER THE FIRST COAT OF PAVING. CONCRETE SHALL BE POURED AND A SECOND LAYER OF ASPHALT LAID OVER THE CONCRETE CUT. RINGS AND CASTINGS SHALL BE CENTERED AT THIS TIME, GROUTING AND POINTING SHALL ALSO BE DONE AT THIS TIME TO PREVENT LEAKAGE INTO THE STRUCTURES AND THE RESULTING SOIL MOVEMENT.
17. STORM WATER INLETS SHALL HAVE AS A TEMPORARY CONTROL A STRAW BALE BARRIER AND A STONE FILTER INSTALLED AROUND THE INLET DURING CONSTRUCTION. AS AN ALTERNATIVE TO THE STRAW BALE BARRIER, A BURLAP AND PEA STONE FILTER MAY BE USED. THREE LAYERS OF BURLAP FIBER AND A FILTER OF PEA STONE MINIMUM 1 FT. DEPTH CAN BE USED. DUE TO THE POROSITY OF THE BURLAP FILTER THE 1 FT OF STONE IS VERY IMPORTANT. THE CONTROL SHALL BE INSTALLED AS SOON AS THE STRUCTURE IS BUILT AND INSPECTED DAILY.
18. BURLAP AND PEA STONE FILTERS WILL NEED TO BE CHANGED AFTER EACH RAINFALL.
19. COUNTY CODE REQUIRES A MINIMUM PIPE SIZE OF 12" IN DIAMETER. IF SMALLER PIPE IS NEEDED FOR OUTLET PURPOSES THE 12"CAN BE BAFFLED TO THE CORRECT SIZE. ALL PIPE SHALL MEET THE 12" DIAMETER CODE SIZE.
20. ALL STORM DRAIN OUTLETS 15" IN DIAMETER OR LARGER SHALL HAVE ANIMAL GUARDS INSTALLED TO PREVENT ENTRANCE TO THE SYSTEM.
21. ALL STORM DRAINAGE PIPE 30" IN DIAMETER OR LARGER SHALL BE POINTED AT THE JOINTS ON THE INSIDE WITH MORTAR, AFTER BACKFILLING.
22. ALL STORM DRAIN OUTLETS THAT DO NOT EMPTY INTO THE DETENTION POND SHALL HAVE A TEMPORARY 5'x10'x3' SUMP INSTALLED AT THE TERMINATION OF THE STORM SEWER. UPON COMPLETION OF THE STABILIZATION WORK THE SUMP AREA SHALL BE FILLED AND RIP RAPPED WITH COBBLE STONE. SILT TRAPS SHALL BE INSPECTED AFTER EACH STORM.
23. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
24. RIP RAP AS NOTED ON THE PLAN SHALL BE OF A FUNNEL SHAPE CONSTRUCTION, WIDTH SHALL INCREASE AS THE DISTANCE FROM THE OUTLET POINT INCREASES AT A 3:1 RATIO.
25. RIP RAP SHALL BE OF COBBLE STONE, 6" IN DIAMETER OR LARGER. GROUTING MAY BE NECESSARY, AND SHALL BE A MINIMUM OF 6"IN DEPTH WITH THE COBBLE SET IN THE CEMENT SLURRY.
26. IT WILL BE NECESSARY FOR THE DEVELOPER TO HAVE THE STORM DRAINAGE LINES CLEANED PRIOR TO FINAL INSPECTION BY THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE. IF REQUIRED, THIS WORK SHALL BE DONE BY A PROFESSIONAL SEWER CLEANING FIRM AND CERTIFIED IN WRITING BY THE PROJECT ENGINEER. ALL SUMPS AND TEMPORARY SILT TRAPS SHALL ALSO BE CLEANED AT THIS TIME.

STABILIZATION

27. ALL UNIMPROVED DISTURBED AREAS SHALL BE RE-TOPSOILED WITH A MINIMUM OF 3" OF MATERIAL, SEEDED, MULCHED AND TACKED WITHIN 15 DAYS OF THE COMPLETION OF THE MASSIVE EARTH DISRUPTION. IN THE NON-GROWING SEASON STRAW MATTING WILL SUFFICE. HYDROSEEDING WILL BE AN ACCEPTABLE ALTERNATE FOR MULCHING. EXTREME CARE SHOULD BE EXERCISED IN SPRING AND FALL PERIODS AS A FROST WILL BREAK THE BIND OF THE HYDROSEEDING, WHICH WILL AFFECT THE HYDROSEEDING, WHICH WILL AFFECT THE EFFECTIVENESS OF THIS PROCEDURE.
28. IN THE NON-GROWING SEASON, TEMPORARY STABILIZATION OF MASSIVELY EXPOSED AREAS FOR WINTER STABILIZATION SHALL BE DONE WITH STRAW MATTING.
29. PERIODIC INSPECTIONS WILL BE MADE THROUGHOUT THE COURSE OF THE PROJECT. IT WILL BE THE RESPONSIBILITY OF THE MANAGERS OF THE PROJECT TO CONTACT THIS OFFICE FOR THE FINAL INSPECTION AT THE END OF THE PROJECT
30. THIS COMMERCIAL PERMIT IS VALID FOR THE MASS EARTH MOVEMENT, THE INSTALLATION OF ROADS, DRAINS, AND UTILITIES, AND IS NOT FOR ANY SINGLE FAMILY RESIDENCE. ALL RESIDENTIAL BUILDERS WILL NEED TO SECURE WAIVERS AND/OR PERMITS AS NECESSARY FOR EACH LOT IN THIS DEVELOPMENT AT THE TIME APPLICATION FOR SINGLE FAMILY RESIDENCE IS MADE.
31. THE ISSUING BUILDING DEPARTMENT SHALL NOT ISSUE THE CERTIFICATE OF OCCUPANCY UNTIL THE FINAL LETTER FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE HAS BEEN RECEIVED.

SEQUENCE OF CONSTRUCTION:

1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PER PLAN.
2. PERFORM SITE DEMOLITION REQUIRED.
3. INSTALL STORM DRAINAGE SYSTEM INCLUDING DETENTION BASINS; INSTALL INLET FILTERS.
4. ROUGH GRADE SITE & STORE SOIL.
5. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES, AS REQUIRED.
6. BRING PAVEMENT AREAS TO SUB-BASE; PLACE SUB-BASE; REMOVE PARKING LOT INLET FILTER AND PLACE ASPHALT PAVEMENT.
7. FINISH GRADE, REDISTRIBUTE TOPSOIL, SEED & MULCH ALL DISTURBED AREAS.
8. REMOVE ALL EROSION & SEDIMENT CONTROL MEASURES;SEED AND MULCH ALL REMAINING UNSTABILIZED AREAS.

SEEDING, FERTILIZER AND MULCH BARE GROUND RATIO:

- TOP-SOIL 3" IN DEPTH
- GRASS SEED 210 LBS./AC.
- FERTILIZER 150 LBS./AC.
- STRAW MULCH 3" IN DEPTH, 1.5 TO 2 TONS / AC. (ALL MULCHING MUST HAVE A TIE DOWN – ASPHALT TACKIFIER, NET BINDING, ETC.)
- HYDROSEEDING IS NOT ACCEPTABLE FOR SLOPES EXCEEDING 1%, IN SUCH CASES STABILIZATION SHALL BE DONE WITH SEED AND STRAW MULCH WITH A TACKIFIER.

MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS

1. SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
2. TRACKING PAD SHALL BE INSPECTED MONTHLY FOR ACCUMULATED DIRT. TRACKING PAD SHALL BE REPLACED WHEN THE STONES ARE CHOCKED WITH DIRT. TRACKING PAD SHALL BE REMOVED IMMEDIATELY PRIOR TO THE FIRST COURSE OF ASPHALT BEING LAID.
3. DETENTION POND SHALL BE INSPECTED QUARTERLY ON A PERMANENT BASIS. MAINTENANCE SHALL INCLUDE SEDIMENT REMOVAL, EMBANKMENT STABILIZATION AND MAINTAINING THE OUTLET STRUCTURE IN GOOD CONDITION. NO TREES SHALL BE ALLOWED TO GROW ON THE EMBANKMENT.
4. CATCH BASINS SHALL BE INSPECTED ANNUALLY FOR ACCUMULATION OF SEDIMENT. ALL SEDIMENT MUST BE REMOVED AND DISPOSED OF PROPERLY WHEN THE SUMP IS FULL.
5. COMMON AREAS SHALL BE STABILIZED NO LATER THAN 15 DAYS AFTER GRADE WORK, PURSUANT TO RULE 1709 (5).

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD US 23, BRIGHTON, MI 48114
PHONE: (810) 225-7100 FAX: (810) 225-7699
www.livingstoneng.com

Client
BEAUCHAMP
872 N OLD US 23
BRIGHTON, MI 48114
810-632-2000

OLD US 23 MINI STORAGE
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
PRELIMINARY SITE PLAN
DETAILS & SESC NOTES

REVISIONS	DATE
WETLAND RETAINING WALL	10/18/2022

Drawn: MJB
Checked: TJZ
Approved: TJZ
Date: 7/25/2022

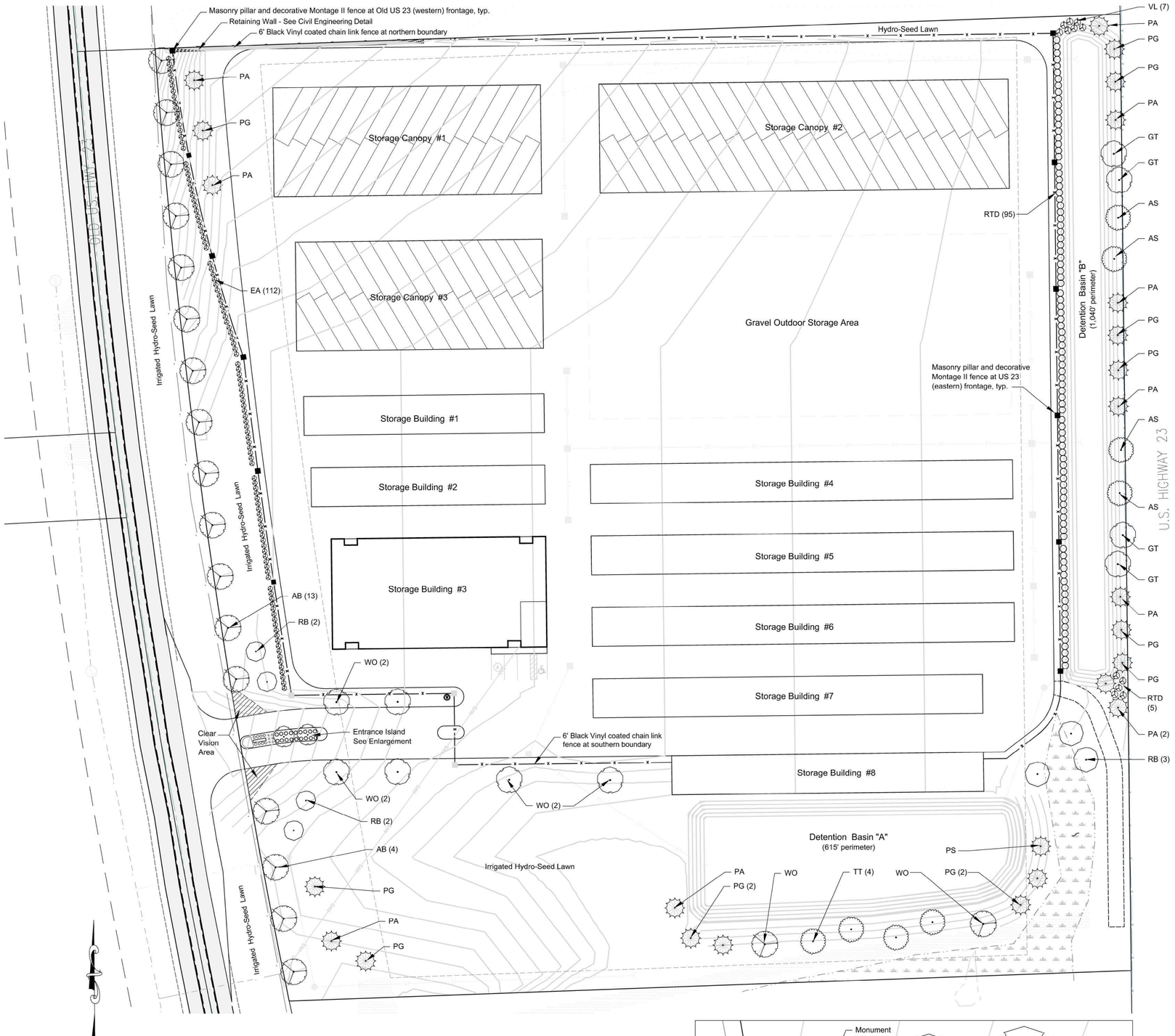
Job. no. 21117
Scale: Vertical: NOT TO SCALE
Horizontal:

7.0

FILE: C:\Users\mjbea\Dropbox (Liveng)\Projects\2021\21117 Beauchamp 11.81 Par Old US 23\03 DWGS\Prelim Site Plan\21117_07.0_Details.dwg

LANDSCAPE PLANTING PLAN :

SCALE : 1" = 40'



PLANT LIST:

SYMB.	QTY.	DESCRIPTION	NOTES
AB	17	Acer rubrum 'Autum Red' Autumn Blaze Red Maple. 3" cal.	B&B
RB	7	Betula nigra River Birch, 8' - 10'	B&B multi-stem
GB	2	Ginkgo biloba Maidenhair Tree, 3" cal.	B&B
GT	4	Gleditsia triacanthos 'Sunburst' Sunburst Locust, 3" cal.	B&B
TT	4	Liriodendron tulipifera Tulip Tree, 3" cal.	B&B
PA	12	Picea abies Norway Spruce, 8'	B&B
PG	13	Picea glauca White Spruce, 8'	B&B
LLL	4	Tilia cordata Little Leaf Linden, 3" cal.	B&B
WO	6	Quercus bicolor Swamp White Oak, 3" cal.	B&B
KF	6	Calamagrostis x acutiflora Karl Foerster Reed Grass, 2 gal.	Container
RTD	100	Cornus sericea Red Twig Dogwood, 42"	B&B
EA	112	Euonymous alatus compactus Dwarf Burning Bush, 36"	B&B
SD	14	Hemerocallis 'Stella D;Ora' Stella D'POra Daylily, 1 gal	Container
HF	8	Hosta francee Variegated Hosta, 2 gal.	Container

ORDINANCE REQUIREMENTS:

Hartland Township Zoning Ordinance Section 5.11

GREENBELT:

Old US 23 = 740' lin ft.

Canopy (Evergreen) Tree: Standard = 1 tree per 30'
740 / 30 = 24.6 25 Canopy / Evergreen Req.

Ornamental Tree / Shrub: Standard = 3 trees per 1st 40'
Standard = 1 / remaining 20'
1st 40' = 3 3 Ornamental Trees Req.
700 / 20 = 35 35 Shrubs Req.

	Required	Provided
Canopy Tree:	25	25
Ornamental Tree:	3	3
Shrub:	35	96

FOUNDATION:

Landscape / lawn area is not planned at the perimeter of the main building or within the secure fenced yard.

PARKING LOT:

Interior: 4 parking spaces provided.
Interior Parking Lot landscape not required

Perimeter: 4 parking spaces provided.
Perimeter Parking Lot landscape not required

BUFFERING:

Subject property abuts same zoning classification and does not abut residential zone or uses.
Buffer landscape not required.

DETENTION BASIN:

Canopy (Evergreen) Tree: Standard = 1 tree per 50'
Large Shrub: Standard = 6 shrubs per 50'

Detention Basin A = 615' lin ft. perimeter
615 / 50 = 12.3 12 Canopy / Evergreen Req.
615 / 50 = 12 x 6 = 72 72 Shrubs Req.

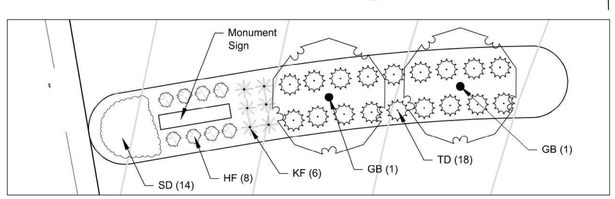
Detention Basin B = 1,040' lin ft. perimeter
1,040 / 50 = 20.8 21 Canopy / Evergreen Req.
1,040 / 50 = 21 x 6 = 126 126 Shrubs Req.

Total	Required	Provided
Canopy Tree:	33	33
Shrub:	198*	126

* Detention Basin "A" is adjacent to an existing wetland. Detention basin shrubs were not provided at Basin "A" in lieu of existing wetland plant and scrub growth in place.

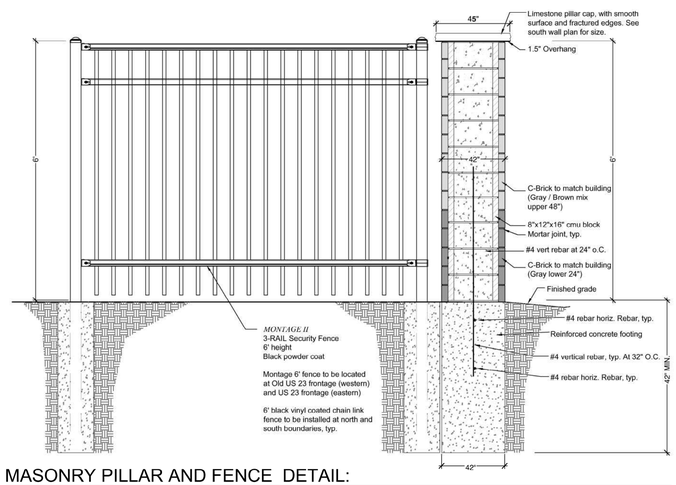
PLANTING NOTES :

1. Contractor shall be responsible for contacting all pertinent utility companies 72 hours in advance of digging to make themselves familiar with all underground utilities, pipes and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities or structures.
2. Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall immediately be brought to the attention of the Owner's Representative. The contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
3. Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's Representative. Failure to make such discrepancies known will result in contractor's responsibility and liability for any changes and associated costs.
4. Contractor shall be responsible for coordination with subcontractors required to accomplish construction installation operations.
5. Contractor shall provide and maintain positive surface drainage throughout project site.
6. Contractor shall be responsible for any existing materials that are damaged during construction.
7. See Plant & Material List and Planting Details for planting requirements, materials and execution.
8. All tree varieties and substitutions, or deviations to the landscape plan must be approved prior to installation. Any plant material delivered to site not previously approved may be rejected and are the sole responsibility of the contractor.
9. The contractor shall provide finish grade and install hydroseeded at all lawn areas. Contractor shall install an automated irrigation system to provide coverage to all lawn and landscape areas.
10. Contractor shall install 3" depth Shredded Hardwood Mulch in all shrub and tree planting beds and at the base of trees, typ.
11. Contractor shall coordinate lawn installation and planting bed construction in conjunction with the timing of other building construction and improvements.
12. The contractor shall guarantee and maintain all trees, shrubs, ground cover and other plant materials for one year from the date of installation, including labor and removal and disposal of dead material.
13. All plant material shall be grade 1 northern nursery grown from a local source and shall meet the current standards of the American Society of Nurseryman.
14. Contractor shall adhere to all soil erosion prevention methods as directed within civil engineering drawings and Municipal Ordinance including maintaining silt fencing and ensuring that soil, silt and other debris is prevented from leaving site or entering area drains, sewer inlets, creeks or natural areas.



LANDSCAPE ENTRANCE ISLAND :

SCALE : 1" = 10'



MASONRY PILLAR AND FENCE DETAIL:

STATE OF MICHIGAN
JAMES T. EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio
Landscape Architecture
Traditional Town Planning
9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

Project:

BEAUCHAMP STORAGE

Old US 23
Hartland Township, Michigan

Owner:

Beauchamp Storage

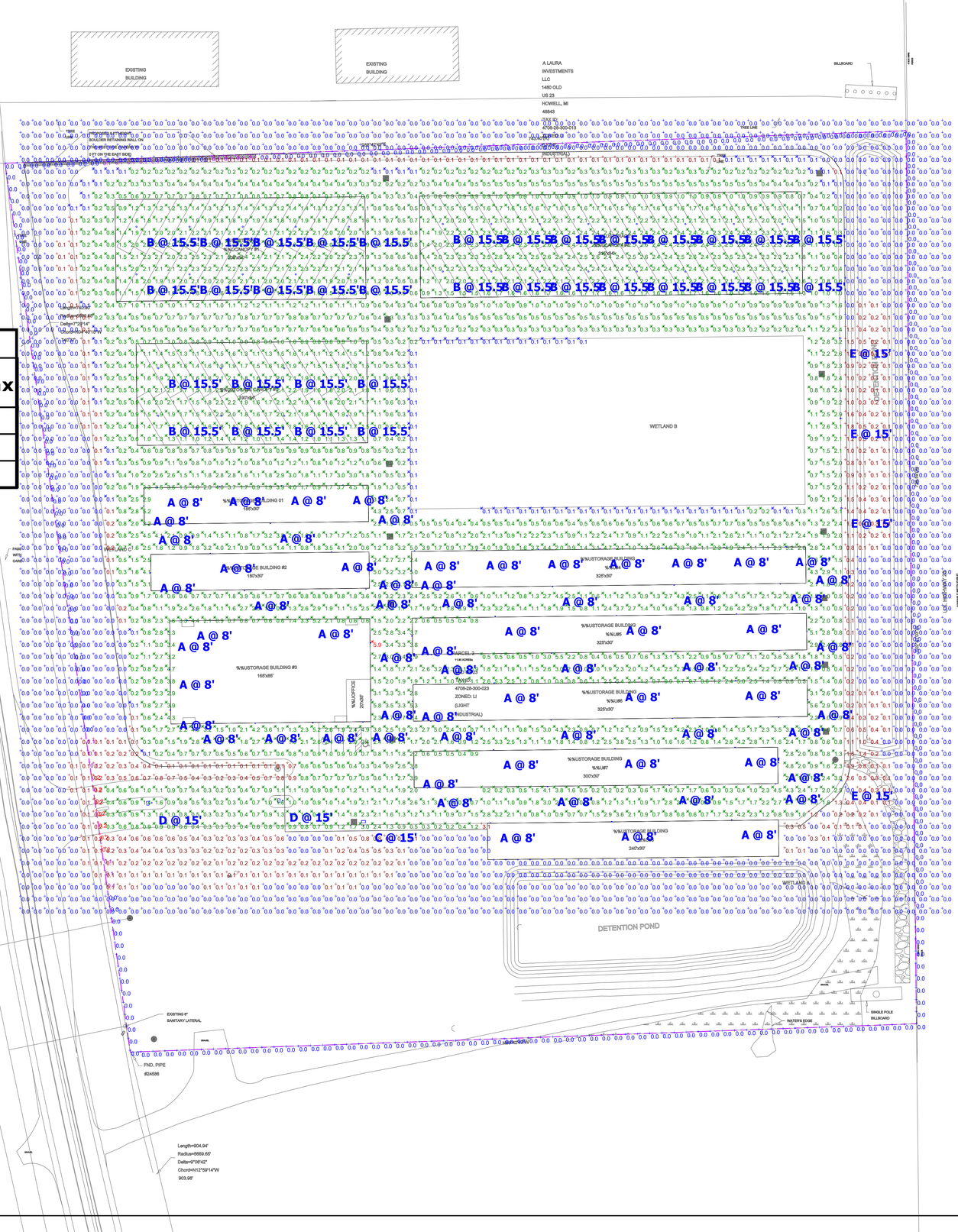
872 N. Old US 23
Brighton, MI 48114
810-632-2000

Sheet:

Landscape Planting Plan

Issues / Revisions

Drawn by: JER
Checked By JTE
Date July 29, 2022
Scale AS SHOWN
Not for Construction
Sheet LP-1



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
Grade @ 0'	+	0.8 fc	5.9 fc	0.0 fc	N/A	N/A	0.1:1
Proprety Line	+	0.0 fc	0.2 fc	0.0 fc	N/A	N/A	0.0:1
Stat Zone # 1	✳	1.4 fc	5.9 fc	0.1 fc	59.0:1	14.0:1	0.2:1

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Lamp	Light Loss Factor
	A	68	Lithonia Lighting	WDGE2 LED 40K 80CRI	LED	0.9
	B	34	Lithonia Lighting	VCPGX LED 40K 80CRI	LED	0.9
	C	1	Lithonia Lighting	DSX0 LED 40K MVOLT	LED	0.9
	D	2	Lithonia Lighting	DSX0 LED 40K MVOLT	LED	0.9
	E	4	Lithonia Lighting	DSX0 LED 40K MVOLT	LED	0.9

General Note

1. SEE DRAWING FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"
3. LIGHTING ALTERNATES REQUIRE NEW PHOTOMETRIC CALCULATION AND RESUBMISSION TO CITY FOR APPROVAL.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

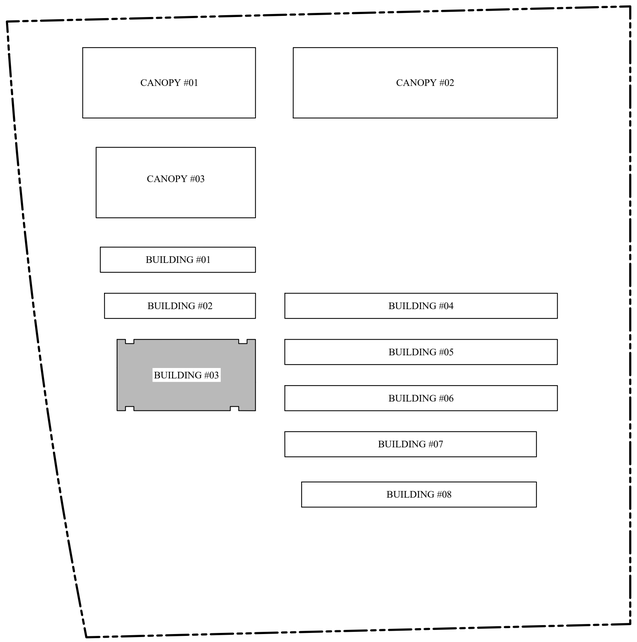
FOR ORDERING INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

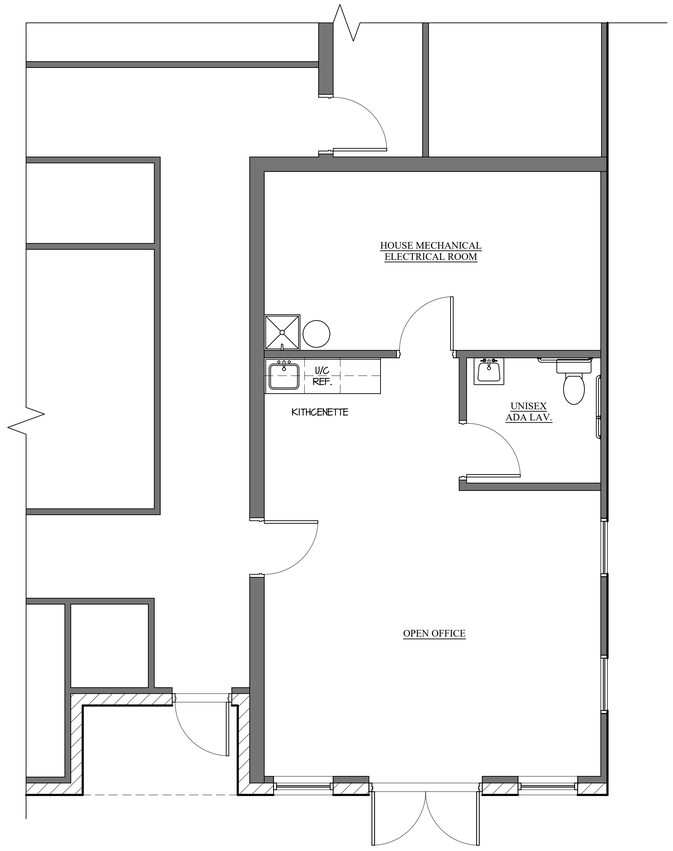
OLD 23 STORAGE
PHOTOMETRIC PLAN
PREPARED FOR: LIVINGSTON ENGINEERING
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
DS
Date
07/21/2022
Scale
Not to Scale
Drawing No.
#22-78069 V1



NORTH

SITE KEY PLAN
SCALE: NONE



NORTH

OFFICE AREA FLOOR PLAN
SCALE: 1/4" = 1'-0"

NORTH

BUILDING #03 KEY PLAN
SCALE: 1/4" = 1'-0"

TOWNSHIP REGULATIONS

ZONED: LI = LIGHT INDUSTRIAL

BUILDING HEIGHT: 35' / 2.5 STORIES
PROPOSED: 18'-2" MAX. / 1 STORY (COMPLIES)

ARCHITECTURAL GUIDELINES: FACADE GROUP #1
- BRICK = 100% MAX.
- STONE = 50% MAX.
- SPLIT-FACED CONCRETE BLOCK = 25% MAX.
- GLASS = 50% MAX. (TINTED IS ACCEPTABLE / COLORED IS NOT ALLOWED)
- MOLDED CORNICES, TRIM, COLUMNS, AND SURROUNDS = 15% MAX.

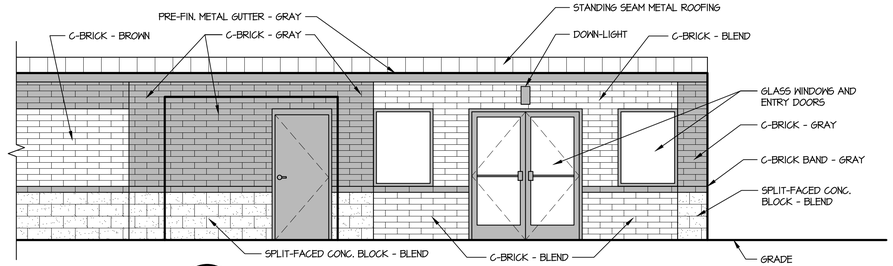
MATERIALS

SPLIT-FACED CONCRETE BLOCK: GRAND BLANC CEMENT PRODUCTS;
BLEND COLOR: "CIMARRON BLEND"

C-BRICK: GRAND BLANC CEMENT PRODUCTS;
GRAY COLOR: "DARK GRAY"
BROWN COLOR: "ISOTHIC"
BLEND COLOR: "CIMARRON BLEND"

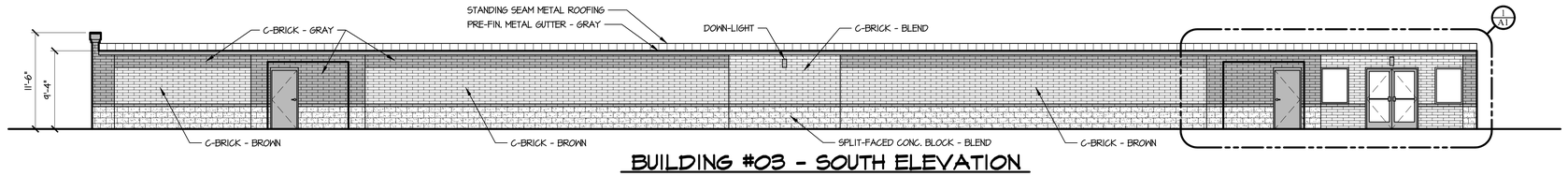
MOULDED CORNICE: HARDI-PLANK; COLOR: "NIGHT GRAY"

GLASS: 1" LOW-E INSULATING GLASS IN DARK BRONZE ANOD. ALUM. FRAMES



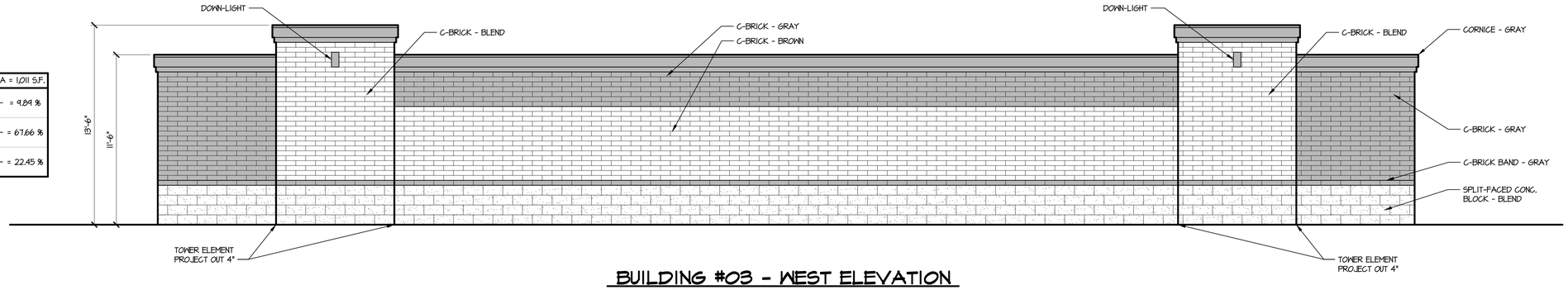
1 / A1 BUILDING #03 - SOUTH ELEVATION @ OFFICES
SCALE: 1/4" = 1'-0"

MATERIAL %'S	OVERALL WALL AREA = 1,549 S.F.		
DOORS	= 49 S.F. ~ % =	49 S.F. / 1,549 S.F.	= 3.16 %
GLASS (50% MAX.)	= 75 S.F. ~ % =	75 S.F. / 1,549 S.F.	= 4.84 %
MOULDED CORNICE (15% MAX.)	= 2 S.F. ~ % =	2 S.F. / 1,549 S.F.	= 0.13 %
C-BRICK (100% MAX.)	= 1,044 S.F. ~ % =	1,044 S.F. / 1,549 S.F.	= 67.40 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 379 S.F. ~ % =	379 S.F. / 1,549 S.F.	= 24.47 %



BUILDING #03 - SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

MATERIAL %'S	OVERALL WALL AREA = 1,011 S.F.		
MOULDED CORNICE (15% MAX.)	= 100 S.F. ~ % =	100 S.F. / 1,011 S.F.	= 9.84 %
C-BRICK (100% MAX.)	= 684 S.F. ~ % =	684 S.F. / 1,011 S.F.	= 67.66 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 227 S.F. ~ % =	227 S.F. / 1,011 S.F.	= 22.45 %



BUILDING #03 - WEST ELEVATION
SCALE: 1/4" = 1'-0"

PUCCI + VOLLMAR ARCHITECTS, PC
ARCHITECTURE + DESIGN + PLANNING
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STATE OF MICHIGAN
KARL VOLLMAR
ARCHITECT
No. 1301039372
LICENSED ARCHITECT

PROJECT
BEAUCHAMP STORAGE
OLD U.S. 23
HARTLAND TWP., MICHIGAN

SHEET TITLE
OFFICE AREA PLAN AND ELEVATIONS

DATE	ISSUED FOR
7-28-2022	SITE PLAN SUBMITTAL

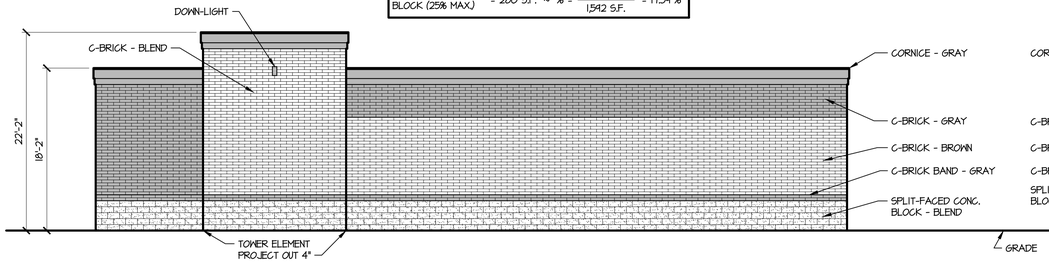
DO NOT SCALE THIS PRINT, USE DIMENSIONS SHOWN ONLY

DRAWN BY: KV
APPROVED BY: KV

PROJECT: 2223

SHEET: A1

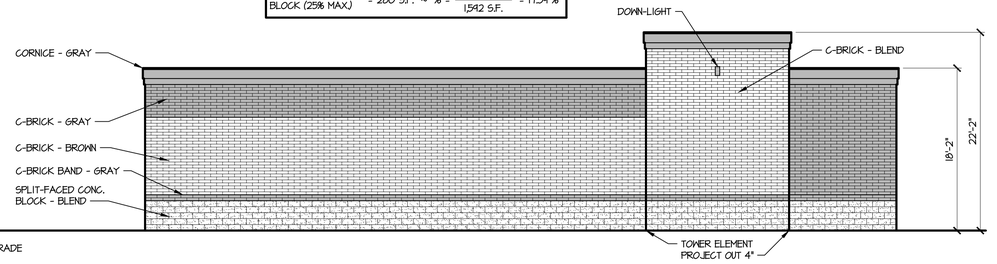
MATERIAL %'S	OVERALL WALL AREA = 1,542 S.F.
MOULDED CORNICE (15% MAX.)	= 99 S.F. ~ % = 99 S.F. / 1,542 S.F. = 6.22 %
C-BRICK (100% MAX.)	= 1,213 S.F. ~ % = 1,213 S.F. / 1,542 S.F. = 76.19 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 280 S.F. ~ % = 280 S.F. / 1,542 S.F. = 17.54 %



CANOPY #01 - END WALL WEST ELEVATION

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

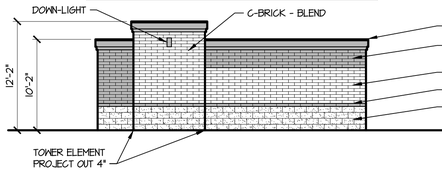
MATERIAL %'S	OVERALL WALL AREA = 1,542 S.F.
MOULDED CORNICE (15% MAX.)	= 99 S.F. ~ % = 99 S.F. / 1,542 S.F. = 6.22 %
C-BRICK (100% MAX.)	= 1,213 S.F. ~ % = 1,213 S.F. / 1,542 S.F. = 76.19 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 280 S.F. ~ % = 280 S.F. / 1,542 S.F. = 17.54 %



CANOPY #03 - END WALL WEST ELEVATION

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

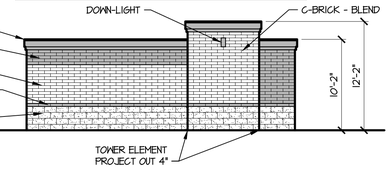
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #01 - WEST ELEVATION

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

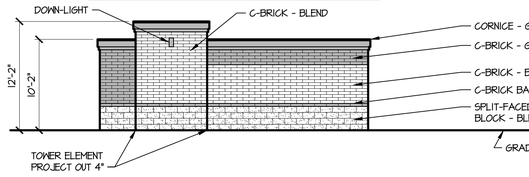
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #02 - WEST ELEVATION

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

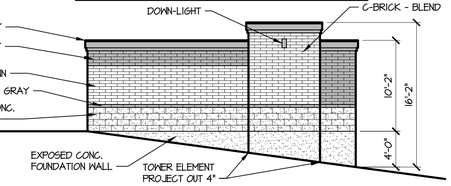
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #07 - WEST ELEVATION

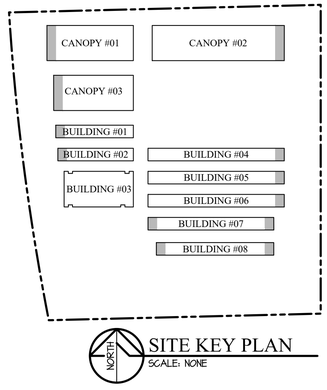
SCALE: 1/8" = 1'-0"

MATERIAL %'S	OVERALL WALL AREA = 382 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 382 S.F. = 11.78 %
C-BRICK (100% MAX.)	= 177 S.F. ~ % = 177 S.F. / 382 S.F. = 46.34 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 382 S.F. = 20.94 %
CONCRETE	= 80 S.F. ~ % = 80 S.F. / 382 S.F. = 20.94 %



BUILDING #08 - WEST ELEVATION

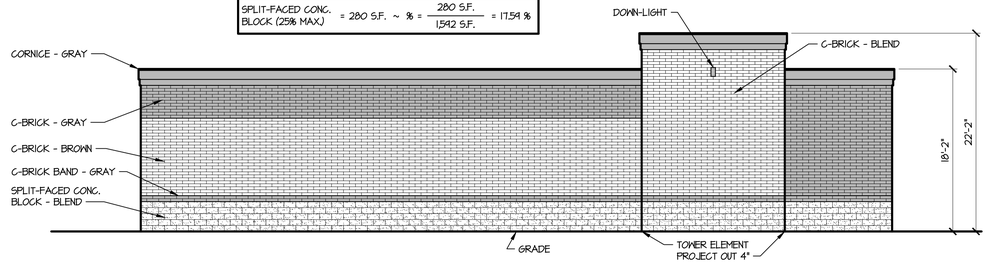
SCALE: 1/8" = 1'-0"



SITE KEY PLAN

SCALE: NONE

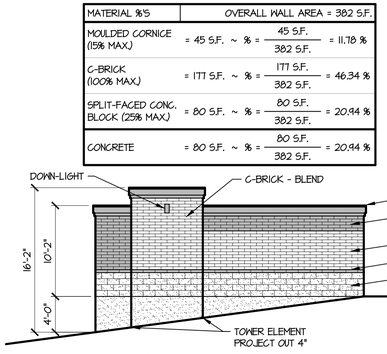
MATERIAL %'S	OVERALL WALL AREA = 1,542 S.F.
MOULDED CORNICE (15% MAX.)	= 99 S.F. ~ % = 99 S.F. / 1,542 S.F. = 6.22 %
C-BRICK (100% MAX.)	= 1,213 S.F. ~ % = 1,213 S.F. / 1,542 S.F. = 76.19 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 280 S.F. ~ % = 280 S.F. / 1,542 S.F. = 17.54 %



CANOPY #02 - END WALL EAST ELEVATION

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

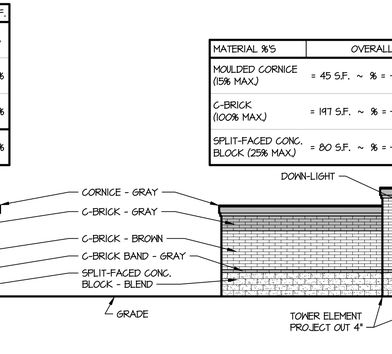
MATERIAL %'S	OVERALL WALL AREA = 382 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 382 S.F. = 11.78 %
C-BRICK (100% MAX.)	= 177 S.F. ~ % = 177 S.F. / 382 S.F. = 46.34 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 382 S.F. = 20.94 %
CONCRETE	= 80 S.F. ~ % = 80 S.F. / 382 S.F. = 20.94 %



BUILDING #08 - EAST ELEVATION

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

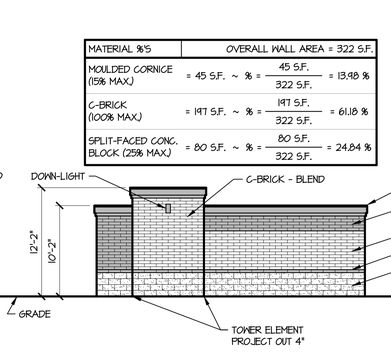
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #07 - EAST ELEVATION

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

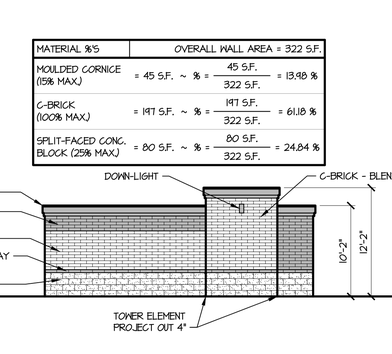
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #06 - EAST ELEVATION

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

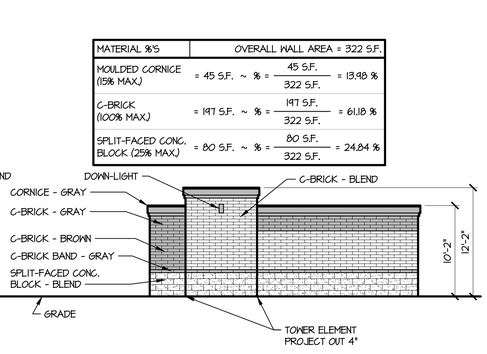
MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #05 - EAST ELEVATION

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

MATERIAL %'S	OVERALL WALL AREA = 322 S.F.
MOULDED CORNICE (15% MAX.)	= 45 S.F. ~ % = 45 S.F. / 322 S.F. = 13.98 %
C-BRICK (100% MAX.)	= 197 S.F. ~ % = 197 S.F. / 322 S.F. = 61.18 %
SPLIT-FACED CONC. BLOCK (25% MAX.)	= 80 S.F. ~ % = 80 S.F. / 322 S.F. = 24.84 %



BUILDING #04 - WEST ELEVATION

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

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SHEET TITLE

END WALL ELEVATIONS

ISSUED FOR:	SITE PLAN SUBMITTAL
DATE:	7-28-2022

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DRAWN BY: KV
APPROVED BY: KV

PROJECT: 2223

SHEET:
A2

2023
HARTLAND TOWNSHIP PLANNING COMMISSION MEETINGS

HARTLAND TOWNSHIP HALL
7:00 P.M.

The regular meetings of the Hartland Township Planning Commission for the year 2023 will be held on the following dates. All meetings are open to the public.

January 12, 2023	**January 26, 2023**
February 9, 2023	**February 23, 2023**
March 9, 2023	**March 23, 2023**
April 13, 2023	**April 27, 2023**
May 11, 2023	**May 25, 2023**
June 8, 2023	**June 22, 2023**
July 13, 2023	**July 27, 2023**
August 10, 2023	**August 24, 2023**
September 14, 2023	**September 28, 2023**
October 12 , 2023	**October 26, 2023**
November 2, 2023	**November 16, 2023**
December 7, 2023	**December 14, 2023**

Tom Murphy
Hartland Township Planning Commission Secretary