#### GENOA CHARTER TOWNSHIP PLANNING COMMISSION PUBLIC HEARING JUNE 12, 2017 MONDAY 6:30 P.M. AGENDA

#### CALL TO ORDER:

**PLEDGE OF ALLEGIANCE:** 

#### **APPROVAL OF AGENDA:**

**CALL TO THE PUBLIC:** (Note: The Board reserves the right to not begin new business after 10:00 p.m.)

## PRESENTATION BY LIVINGSTON COUNTY PLANNING REGARDING THE COUNTY MASTER PLAN PROCESS.

**OPEN PUBLIC HEARING #1...(Tabled 10-11-16)** Review of site plan application, PUD amendment, environmental impact assessment and site plan for a proposed multi-tenant commercial center to include a 2,117 sq. ft restaurant with drive-thru, a 2,819 sq. ft. restaurant space with an attached 1,501 hair salon located at the northwest corner of the Grand Oaks Drive and Latson Road. The property is located within the Livingston Commons Phase 2 PUD on parcel #11-08-200-017. The request is petitioned by USA 2 GO. (16-20)

Planning Commission recommendation of petition:

- A. Recommendation of Impact Assessment (5-3-17)
- B. Recommendation of Site Plan (5-3-17)

**OPEN PUBLIC HEARING #2...(Tabled 3-13-17)** Review of site plan application, environmental impact assessment and site plan for a proposed 101 room 4 story "Hampton Inn and Suites" hotel located southwest of the Grand Oaks Drive and Latson Road intersection. The property is located within the Livingston Commons Phase 2 PUD on parcel #11-08-200-020. The request is petitioned by Howell Hospitality Inc. (17-01)

Planning Commission recommendation of petition:

- A. Recommendation of Impact Assessment (5-1-17)
- B. Recommendation of Site Plan (5-24-17)

**OPEN PUBLIC HEARING #3...**Review of special use application, site plan application, environmental impact assessment and site plan for a proposed 30,000 sq.ft. warehouse/storage addition to the existing A & F Wood Products located at 5665 Sterling Drive, Howell. The request is petitioned by Schonsheck Inc. (17-06)

Planning Commission recommendation of petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Impact Assessment. (5-1-17)
- C. Recommendation of Site Plan. (5-24-17)

#### **ADMINISTRATIVE BUSINESS:**

- Staff Report
- Approval of May 8<sup>th</sup>, 2017 Planning Commission meeting minutes
- Member discussion
- Adjournment



## **GENOA CHARTER TOWNSHIP Application for Site Plan Review**

**GENOA TOWNSHIP** 

AUG 2 5 2016

RECEIVED

#### TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

USA 2 GO, 28265 Beck Road, Suite C-2, wixon, MI 48393 If applicant is not the owner, a letter of Authorization from Property Owner is needed. OWNER'S NAME & ADDRESS: RG Properties, 10050 Innovation Dr., Suite 100, Dayton, OH 45342

SITE ADDRESS: Intersection of Latson Rd. and Grand Oaks Dr. PARCEL #(s): 11-08-200-017

APPLICANT PHONE: (248) 773-7992 OWNER PHONE: (937) 434-7218

OWNER EMAIL: tgunlock@rgproperties.com

LOCATION AND BRIEF DESCRIPTION OF SITE: The site is located at the northwest corner

of S. Latson Road and Grand Oaks Drive. The property has 380 feet of frontage on

Latson Road. The zoning is currently undeveloped, non-residential planned unit

development (NRPUD). The total site is approximately 1.43 acres.

The proposed use for the property is to build a drive-thru BRIEF STATEMENT OF PROPOSED USE:

coffee shop in the northern building and a second commercial building, with required parking.

The northern building is a proposed coffee shop THE FOLLOWING BUILDINGS ARE PROPOSED:

with drive-thru service. The building will be approximately 2,117 s.f. in total area.

The second building will be approximately 4,320 s.f. containing two units.

#### I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY **KNOWLEDGE AND BELIEF.**

BY: Thom Dumond w/Boss Engineering

ADDRESS: 3121 E. Grand River Ave., Howell, MI 48843

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Thom Dumond

of Boss Engineering Business Affiliation

at\_\_\_\_\_

Name

E-mail Address

-1

FEE EXCEEDANCE AGREEMENT
As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy. SIGNATURE:
PRINT NAME: Thom Dumond pHONE 517-861-9387
ADDRESS: 3121 E. Grand River Ave., Howell, MI 48843

#### GENOA CHARTER TOWNSHIP PLANNING COMMISSION PUBLIC HEARING OCTOBER 11, 2016 6:30 P.M. MINUTES

<u>CALL TO ORDER</u>: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Barbara Figurski, James Mortensen, Eric Rauch, Chris Grajek, and Diana Lowe. Absent was John McManus. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Tech, Brian Borden of LSL Planning and an audience of 0.

<u>PLEDGE OF ALLEGIANCE</u>: The pledge of allegiance was recited.

<u>APPROVAL OF AGENDA:</u> **Moved** by Commissioner Figurski, seconded by Commissioner Lowe, to approve the agenda as presented. **The motion carried unanimously.** 

CALL TO THE PUBLIC: The call to the public was made at 6:32 pm with no response.

**OPEN PUBLIC HEARING #1...**Review of Environmental Impact Assessment and Site Plan for a proposed multi-tenant commercial center to include a 2,117 sq. ft. restaurant with drive-thru, a 2,819 sq. ft. restaurant space with an attached 1,501 sq. ft. hair salon, located at the northwest corner of Grand Oaks Drive and Latson Road. The request is petitioned by USA 2 GO.

- A. Recommendation of Impact Assessment (9-21-16)
- B. Recommendation of Site Plant (9-21-16)

Thom Dumond of Boss Engineering gave a description of the proposed project. The building to the north will have a coffee shop with a drive thru. The building to the south will be a commercial building with a restaurant and a hair salon. He showed colored renderings.

Commissioner Mortensen questioned if the proposed entranceway sign meets the requirements in the agreement. Ms. VanMarter stated she prefers to have the sign in this location than where it was originally proposed.

Mr. Borden reviewed his letter of October 4, 2016. He noted that because this is part of a PUD, the Planning Commission will be making a recommendation to the Township Board.

One side of each of the buildings falls slightly short of the required 80 percent natural features requirement. Commissioner Rauch would like to see more of the materials that are being used on the front of the building brought onto the drive through side of the

building to the north. Commissioner Mortensen feels this should be done on the two sides that are currently bare. Mr. Dumond advised he will make these changes.

Mr. Borden stated there are some small landscaping discrepancies that need to be addressed, permits must be obtained for all signage, channel lettering is required, and the easement that the owner has granted to the Township for the entrance sign needs to be 7' x 25'.

Mr. Markstrom stated he has two outstanding issues regarding water and sanitary sewer leads. The applicant is working with him to meet the guidelines.

There was a discussion regarding the traffic flow on the site as well as the ingress and egress points as they relate to the stacking of the drive thru traffic.

The Commissioners and the applicant discussed changes that need to be made to the Environmental Impact Assessment.

**Moved** by Mortensen, seconded by Figurski, to table the request from USA 2 GO until the November 14, 2016 Planning Commission meeting. **The motion carried unanimously.** 

#### Administrative Business:

• Staff Report

Ms. VanMarter stated that the Governor has recently signed a new law pertaining to marijuana dispensaries. The Township is currently under a moratorium with regard to them, but she will be bringing this issue to the Planning Commission at a future meeting to address.

• Approval of the September 12, 2016 Planning Commission meeting minutes

**Moved** by Commissioner Figurski, seconded by Commissioner Mortensen, to approve the minutes of the September 12, 2016 Planning Commission Meeting as presented. **The motion carried unanimously.** 

• Member Discussion

The Michigan Association of Planners conference is being held October 26<sup>th</sup> through the 29<sup>th</sup>.

The Commissioners asked Ms. VanMarter to have the petitioner from tonight bring the sample building materials to the November meeting.

• Adjournment

**Moved** by Commissioner Figurski, seconded by Commissioner Mortensen, to adjourn the meeting at 8:09 pm. **The motion carried unanimously.** 



Planning Commission Genoa Township 2911 Dorr Road Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP
	Planning Director and Assistant Township Manager
Subject:	Genoa Plaza – Site Plan Review #3
Location:	Grand Oaks Drive – vacant parcel at the northwest corner of Grand Oaks and Latson Road
Zoning:	NR-PUD Non-Residential Planned Unit Development District

Dear Commissioners:

At the Township's request, we have reviewed the revised site plan (dated 5/3/17) proposing a new multitenant commercial center for the vacant 2.31-acre site at the northwest corner of Grand Oaks and Latson Road.

The site, which is immediately east of Lowe's, is part of the Livingston Commons PUD and is zoned NR-PUD. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance, as well as the PUD Agreement for the subject site.

#### A. Summary

- 1. We suggest the proposed amendments to the PUD Agreement be clarified with respect to the 3-foot rear yard setback and the restricted right-in/right-out access to Grand Oaks.
- 2. The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. Details must be provided for the wall-mounted light fixtures.
- 3. The applicant must provide the Township with a clean landscape plan to ensure consistency between the plan and plant list.
- 4. Permits will be required prior to installation of any tenant signage.
- 5. The entranceway signage easement must be recorded and dedicated to the Township.

#### B. Proposal/Process

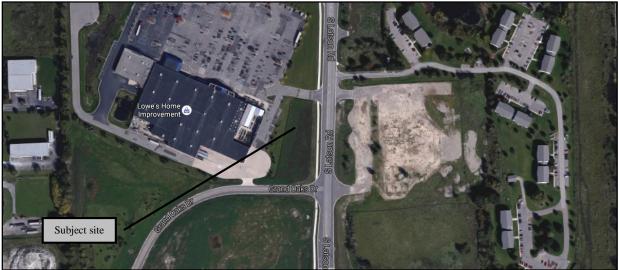
The applicant requests site plan review and approval of a multi-tenant commercial center, which includes two buildings – one drive-through restaurant containing 2,117 square feet of floor area and a two tenant building (retail and sit down restaurant) containing 4,038 square feet of floor area.

Based on the PUD Agreement, the uses are all permitted by right, although the drive through restaurant must comply with the specific use conditions outlined in Paragraph D below.

The revised submittal also includes proposed changes to the PUD Agreement, which are described in Paragraph C below.

Procedurally, the Planning Commission is to make a recommendation to the Township Board on the final PUD site plan, proposed amendments to the PUD Agreement and Environmental Impact Assessment.

Genoa Township Planning Commission Genoa Plaza Site Plan Review #3 Page 2



Aerial view of site and surroundings (looking north)

#### C. PUD Agreement

The revised submittal includes proposed amendments to the PUD Agreement specific to the subject site. aside from the tying the Plan to the Agreement, the primary changes are an allowance for a 3-foot rear yard setback (point 4) and the ability to construct a restricted access drive from Grand Oaks while allowing the existing Lowe's drive to remain (point 5).

With respect to the former, we suggest the language be amended such that it clearly ties the 3-foot rear yard setback to the drive aisle (and not buildings). As for the latter, the language should be clarified to note a restricted right-in or right-out access to Grand Oaks (and not both).

#### **D.** Use Conditions (Drive through Restaurant)

Section 7.02.02(j) provides the following use conditions for drive-through restaurants:

1. Principal and accessory buildings shall be setback fifty (50) feet from any adjacent public right of way line or property line.

The proposed building containing the drive-through restaurant provides a minimum setback of 50 feet to the westerly lot line. This standard is met.

## 2. The establishment of a new drive-through restaurant shall require the lot be separated a minimum of five hundred (500) feet from any other lot containing a drive-through restaurant.

The PUD Agreement specifically waives this standard.

#### 3. Only one (1) access shall be provided onto any street.

There is a one-way entrance to the site from Grand Oaks and a connection to an internal service drive from Latson Road; however, there is no direct access to/from Latson. This standard is met.

## 4. Such restaurants constructed adjacent to other commercial developments shall have a direct vehicular access connection where possible.

As noted above, the site has a connection to an internal drive that provides access throughout the development. This standard is met.

#### E. Site Plan Review

**1. Dimensional Requirements.** As described in the table below, the project complies with the dimensional standards for this PUD:

	Lot Size		Minimum Setbacks (feet)		et)	Max.		
District	Lot Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking	Height	Lot Coverage
NR- PUD	1	120	10	5	10	10 front 5 side/rear	75' / 5 stories	50% building 90% impervious
Proposal	2.31	874	62 (Latson) 75 (Grand Oaks)	112 (N)	31	10 front 30 side/rear	21.7' / 1 story	10% building 25% impervious

2. Building Materials and Design. The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission.

Primary materials include brick and cement board siding, with decorative awnings, brick soldier course and a stone block base as accents. The flat roof buildings include parapets to screen mechanical equipment. The elevation drawings include a note stating that all rooftop units will be fully screened by the parapet walls.

The PUD agreement requires that out parcel buildings provide at least 80% natural materials for all wall surfaces. The revised material calculations demonstrate a compliant amount of cement board siding on each building face.

**3. Parking.** Based on the specific uses proposed, the development requires a total of 54 spaces, while 57 are provided. This includes the 3 required barrier free spaces. Typical parking details also show the use of looped (double striped) spaces, as required.

Additionally, Section 14.04 requires 10 stacking spaces, 3 short-term waiting spaces and 2 RV/semitruck spaces. The revised plan provides 10 stacking spaces and 3 parking spaces just past the drive through window that may act as waiting spaces.

Given the full scope of the Livingston Commons development, the Township has previously allowed the use of other areas within the PUD for the RV/semi-truck parking.

- **4. Pedestrian Circulation.** There is an existing concrete sidewalk in the Latson right-of-way. The plan proposes two connections to this sidewalk, as well as a separate sidewalk along the site's Grand Oaks frontage. Internal connections, crosswalk striping and ramps at driveways are also provided.
- **5.** Vehicular Circulation. Primary vehicular access is via the east/west drive connecting Lowe's to Latson Road. There is also a one-way entrance (right turn in only) from Grand Oaks.

The revised plan provides for two-way circulation around the site with a curbed island preventing cutthrough traffic into the drive through lane (as was previously discussed).

As described in Paragraph C above, the project includes a proposed amendment to the PUD Agreement that would allow for a restricted right turn drive from Grand Oaks in addition to the existing Lowe's drive immediately west of the subject site.

6. Loading. Previous versions of the plan called for loading zones on the west side of the single tenant building and included an indication that deliveries will be scheduled for off-peak time to minimize any disruption to traffic circulation.

**7.** Landscaping. We have reviewed the landscape plan based on the conventional standards of Section 12.02 with adjustments made per the terms of the PUD Agreement.

Location	Requirements	Proposed	Comments
Front yard greenbelts	Extensive landscaping 10' width	13 trees 2.5' hedgerow 10' width	Requirements met
Parking lot	19 trees	20 trees	Requirement met

Additionally, the project includes outdoor tables/chairs, benches and bike rack in accordance with the PUD Agreement requirement for "pedestrian gathering and seating plazas."

Lastly, many of the plant labels on the plan have been cut off and we are unable to accurately reconcile the landscape plan with the plant list. The applicant must provide the Township with a clean version of the landscape plan to ensure consistency.

- 8. Waste Receptacle and Enclosure. The project includes a new waste receptacle and enclosure along the southwest side of the two-tenant building. Details include the required concrete base pad and enclosure matching the materials used on the building. Placement and design details also comply with Ordinance requirements.
- **9.** Exterior Lighting. Sheet C7 includes a detailed lighting plan proposing the use of 8 parking lot light poles, 12 wall-mounted fixtures and 11 ornamental street lights.

Details are included for the pole-mounted fixtures and the ornamental lighting; however, the applicant must include details of the proposed wall-mounted fixtures.

**10. Signs.** Sheet C3 shows a proposed monument sign near the driveway to Latson Road and Sheet C10 includes a detail. The proposed setback, materials, height and area are consistent with current standards.

When tenants are known, the applicant must apply for a sign permit for the monument sign panels and wall signage. As was previously mentioned, this PUD requires the use of channel or individual lettering and not panels for wall signage.

- **11. Impact Assessment.** The submittal includes a revised Impact Assessment (dated 5/3/17). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.
- **12. Township Entranceway.** Section 6.4B of the PUD Agreement requires a Township entranceway landmark with a depiction included as Exhibit D.

As noted in our previous review letters and discussed at the prior meeting, this feature was envisioned closer to the expressway ramp; however, we believe the southeast corner of the site could be an appropriate location with better visibility.

The current submittal provides an area for the entranceway signage along with additional ornamental landscaping to enhance this site as a gateway to the Township. The revised plans identify a 7' x 25' easement area for the entranceway signage and landscaping, as was previously discussed.

This easement must be recorded and dedicated to the Township.

Genoa Township Planning Commission Genoa Plaza Site Plan Review #3 Page 5

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at <u>borden@lslplanning.com</u>.

Respectfully, LSL PLANNING, A SAFEBUILT COMPANY

Brian V. Borden, AICP Planning Manager



June 1, 2017

Ms. Kelly Van Marter Genoa Township 2911 Dorr Road Brighton, MI 48116

#### Re: Genoa Plaza Site Plan Review #3

Dear Ms. Van Marter:

We have reviewed the updated site plan documents from Boss Engineering, Inc. dated May 3, 2017. The applicant is proposing a mixed-use development including a 2,117 sft restaurant with drive-thru service, a 2,819 sft restaurant space, and an attached 1,501 sft hair salon on the northwest corner of Grand Oaks Drive and Latson Road in an outlot east of Lowe's. Tetra Tech has reviewed the updated documents and site plan and offers the following comments:

#### **Summary**

- 1. Revisions to the on-site sanitary route and connection.
- 2. Verify storm water weighted runoff coefficient.
- 3. One way access from Grand Oaks.

#### Site Plan

- 1. The proposed sanitary connection to the existing SAN01 manhole creates a flow restriction. The proposed alignment between manholes SAN2P and SAN1P should be continued south to the existing sanitary main and a new manhole installed to connect the proposed to the existing sewer just west of the access drive on Grand Oaks Drive.
- 2. The weighted runoff coefficient for the site should be added to the drainage area table on sheet C4 so compliance to the site detention waiver conditions, as set forth by Genoa Township on August 22, 2011, can be confirmed.
- 3. The submitted PUD amendment requesting an access to the site from Grand Oaks Drive must be addressed prior to action on the proposed site plan. Additionally, the drive should be the minimum radius required per the fire department in an effort to limit unauthorized access from the general public. Consider, if space allows per fire department, adding a right-turn lane into the site to further prevent left turns into and out of the site.

The petitioner should review the above comments, revise the site plan drawings, and resubmit the documents for review. The petitioner will also be required to submit construction plans for public utilities

Ms. Kelly Van Marter Genoa Plaza – Site Plan Review 3 June 1, 2017 Page 2

to MHOG for plan review, permitting, and construction inspection requirements. At that time the easements should also be executed and submitted to MHOG for acceptance.

Please call if you have any questions.

Sincerely,

Gary J. Markstrom, P.E. Unit Vice President

epit

Marguerite K. Davenport Project Engineer

Copy: Thom Dumond P.E., Boss Engineering, Inc.

**BRIGHTON AREA FIRE AUTHORITY** 



615 W. Grand River Ave. Brighton, MI 48116 o: 810-229-6640 f: 810-229-1619

May 31, 2017

Kelly VanMarter Genoa Township 2911 Dorr Road Brighton, MI 48116

RE: Genoa Plaza Latson & Grand Oaks Dr. Genoa Twp., MI

Dear Kelly,

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on May 17, 2017 and the drawings are dated August 22, 2016 with latest revisions dated May 3, 2017. The project is for a proposed new multi-tenant retail plaza consisting of one 4,038 square foot mixed-use structure and one 2,117 square foot single tenant structure.

1. Based upon building size, proposed occupancy use and potential occupant load; Structure R2 may be required to be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. Architectural drawings and detail are required to make this determination for both structures. (Noted that suppression is not required based upon submitted design)

IFC 903

- A. If automatic sprinklers are required, the FDC shall be located on the front of the building (Latson rd.).
- B. If required; the location, size, gate valve and connection of the fire protection lead(s) shall be indicated on the utility site plan.
- The buildings shall include the address numbers on the building. The address shall be a minimum of <u>6</u>" high letters of contrasting colors and be clearly visible from the street (Latson Rd.). The location and size shall be verified prior to installation. (Noted to be provided on Architectural Drawings once Issued)

#### IFC 505.1

3. The one way access road along the rear of the structure along with the one-way entrance onto the site from Grand Oaks Dr. shall be a minimum of 20' wide and be maintained the entire length of the rear of the property. The two-way access drive extending along the east side of the property from the south to the north shall be a minimum of 26' wide. There is no dimension identifying this width on the site plan. With a width of 26' wide, the building side of the drive shall be marked as a fire lane. With a width of 20' both sides of the rear drive shall be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. Access roads to site shall be provided and maintained during construction. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds. (All items were revised or noted on previous submittals. Dimensions of the drives are no longer shown on the drawings).



May 31, 2017 Page 2 Genoa Plaza Latson & Grand Oaks Dr. Site Plan Review

> IFC D 103.1 IFC D 103.6 IFC D 103.6.1 IFC D 103.6.2

4. An additional fire hydrant must be installed on the front (Latson Rd.) side of the structure at the drive-thru lane exit between the two buildings, near reference P09. The existing hydrants provided on the Utility plan are located at the rear area not on the property and are not conducive for fire department operations. (Provided on Utility Plan in appropriate location, however, the layer appears to be off and is disrupting the layout of the water main)

IFC C 103

 Access onto the site and around building shall provide emergency vehicles with a turning radius of 50' outside and 30' inside up to 55' wall to wall and a minimum vertical clearance of 13<sup>1</sup>/<sub>2</sub> feet. (Vehicle Circulation was Provided and Radii were previously noted, but are no longer shown on the drawing)

> IFC 503.2.1 IFC D 103.3

6. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box shall be located adjacent to the front door of each occupant space of both structures. (Noted to be Provided at Time of Construction, note is no longer shown on submittal)

IFC 506.1

7. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. (Noted on Drawing, Contractor TBD)

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department.

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Capt. Rick Boisvert, CFPS Fire Inspector

www.brightonareafire.com

#### IMPACT ASSESSMENT FOR SITE PLAN PETITION "GENOA PLAZA" GENOA TOWNSHIP, LIVINGSTON COUNTY MICHIGAN

Prepared for:

USA 2 GO 28265 BECK ROAD, SUITE C-2 WIXOM, MI 48393 (248) 773-7992

Prepared by:

BOSS ENGINEERING COMPANY 3121 E. GRAND RIVER HOWELL, MI 48843 (517) 546-4836

> August 22, 2016 Revised: 05/03/2017

#### 16-243 EIA

#### INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development may have on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements for Impact Assessment* guidelines in accordance with Section 18.07 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

#### **DISCUSSION ITEMS**

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared For: USA 2 GO 28265 Beck Road, suite c-2 Wixom, MI 48393 (248) 773-7992

Prepared By: BOSS ENGINEERING COMPANY Civil Engineers, Land Surveyors, Landscape Architects and Planners 3121 E. Grand River Howell, MI 48843 (517) 546-4836

Boss Engineering has been successfully providing engineering, surveying, planning and landscape architecture services on land development projects since 1969. Since its beginning, Boss Engineering has strived to provide unparalleled professional services with integrity and respect to every client. Today, Boss provides a complete lineup of consulting services for each project, ranging from conceptual design through final construction. The company currently employs a variety of professions including civil engineers, surveyors, landscape architects and sanitarians.

# B. Map(s) and written description / analysis of the project site including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

The site is located on the west side of South Latson Rd, approximately 1500 feet south of the Grand River Ave intersection. The property has 380 feet of frontage along South Latson Rd, the entire width of the site. To the east on the opposite side of South Latson Road is non-residential planned unit development use, planned to have a drive-in bank be built on it. To the north and west is a Lowe's Home Improvement. Further north is a Comerica Bank. South of the property is a Tim Hortons. The subject property is currently undeveloped, non-residential planned unit development (NRPUD).

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

The total site area is 2.31 acres. No right away exists on the property, making the total buildable acreage 2.31. There are no wetlands on the property. The site is relatively flat, but with a gradual slope in the southwest corner with an increasing slope at approximately 1.18%. The trees and shrubs/brush on site are minimal and located along the west property line on top of the minor ridge, while the remainder of the

Genoa Plaza

site is open area. The USDA Soil Conservation Service soil classification for the site is Miami-Loam 2-6% slopes.

# D. Impact on storm water management: Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from County Soil Conservation Service.

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner, including silt fence, inlet protection devices, and seed and mulch.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

The Site Plan documents show the proposed locations of all site improvements along with detailed soil erosion control information. The plans will be reviewed by the Livingston County Drain Commissioner's office for compliance with their regulations prior to issuance of a Soil Erosion Control permit.

E. Impact on surrounding land use: Description of the types of proposed uses and other man made facilities, including any project phasing, and an indication of how the proposed use conforms or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

To the north is an existing driveway that connects to both the parking lot for Lowes, and the Comerica Bank. It will connect to the north end of the proposed Genoa Plaza. The proposed drive-in bank construction will take place at the property to the east, on the other side of Latson Rd.

With the proposed use being a coffee shop, sit down restaurant, and hair salon, most of the activity on the property would be weekdays 7 AM to 6 PM. Unlike a commercial use, there would be limited evening or weekend traffic with hours of operation being limited.

The increase in light, noise or air pollution would be far less than what is typically associated with a commercial development. Developing two smaller buildings on the property will have minimal impact on surrounding properties.

## F. Impact on public facilities and services: Description of number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection.

Letters from the appropriate agencies may be provided, as appropriate.

The anticipated occupancy of 18 employees plus the customers, will have very little negative impact to nearby properties, but may even help the neighboring businesses with additional subsidiary patronage.

There is no expected impact on Howell Area Schools and very minimal impact on the police and fire departments.

G. Impact on public utilities: Description of the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites service with sanitary sewer, calculations for pre- and post development flows shall be provided in equivalents to a

## single-family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

The development is to be served by both public water and sanitary sewer. The public water is provided by MHOG Sewer and Water Authority, where the sanitary sewer collection is provided by the G-O Sewer Authority.

The development will tap into an 8" existing water main NORTH of the site along the access drive to provide water service. For sanitary, gravity sewer will be used from an existing manhole south of the site, located at the back of curb for Grand Oaks Drive.

The following is the estimated water usage of the proposed development:

- 2,117 SF Coffee Shop 2.6 REU per premise
- 2,000 SF Sit-Down Restaurant (assume no liquor license) 2.4 REU per 1,000 SF = 4.8 REU
- 1,960 SF Hair Salon 0.38 REU per booth, 0.30 REU per mani/pedi/spa station (need more information)

The pre-development sanitary flow from this site is zero. Post-development flows will be calculated during the engineering review of the project.

With regards to storm water management, the project will be required to meet all local, county and state storm water and erosion control requirements. All of the required information is included in the Site Plan documents. Most storm water runoff will be directed to the surrounding existing storm sewer systems, located all around the site.

# H. Storage or handling of any hazardous materials: Description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

There will be no hazardous materials used or disposed of on this site, such as gas cans, striping paint, etc.

# I. Impact on traffic and pedestrians: A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the Institute of Transportation Engineers Trip Generation Manual, other published studies or actual counts of similar uses in Michigan.

According to the Institute of Transportation Engineers Trip Generation 6th addition, the number of trips generated by this development would be an average of 1146 trips per day (39.92 trips per unit per 1,000sf) during the week days, or 5732 trips per 5-day work week. This is based on a shopping center.

## J. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets.

The site is under 10 acres. Therefore, a detailed traffic impact study is not necessary.

## K. Special Provisions: General description of any deed restrictions, protective covenants, master deed or association bylaws.

None at this time.

#### L. A list of all sources shall be provided.

Genoa Township's Submittal Requirements for Impact Assessment

Genoa Township Zoning Ordinances

Soil Survey of Livingston County, Michigan, U.S.D.A. Soil Conservation Service

National Wetland Inventory Plan, United States Department of the Interior, Fish and Wildlife Service

Trip Generation manual, 6th edition, Institute of Transportation Engineers



2911 Dorr Road Brighton, MI 48116 810.227.5225 810.227.3420 fax

genoa.org

### MEMORANDUM

то:	Thom Dumond, Boss Engineering
FROM:	Kelly VanMarter, Assistant Township Manager/Community Development Director
DATE:	October 6, 2016
RE:	ESTIMATED Genoa Plaza Sewer and Water Tap Fees

This memo will describe the connection fees required for a new 2,117 sq. ft. Coffee Shop, a 2,819 sq. ft. Restaurant (without liquor license), and a 1,501 sq. ft. Hair Salon located on part of parcel 11-08-200-017 at the northwest corner of Grand Oaks Drive and Latson Road. For the purposes of estimating the potential fees I assume 6 booths for the Hair Salon. *The figures below are subject to change once we have actual tenant data.* 

2,117 sq. ft. Coffee Shop @ 2.6 REU per premise =	2.6 REU
2,819 sq. ft. Sit-down Restaurant (no alcohol) @ 2.4 REU per 1,000 sq. ft. =	6.8 REU
1,501 sq. ft. Hair Salon @ 0.38 REU per Booth, assume 6 booths =	2.3 REU
TOTAL REU NEW BUILDINGS =	11.7 REU

**OPTION 1 – PAYMENT:** If the owner is not transferring REU credits to the development the following fees would be applicable:

11.7 REU x \$7,200 per Sewer REU =	\$ 84,240.00
11.7 REU x \$7,900 per Water REU =	\$ 92,430.00
TOTAL DUE =	\$176,670.00

**OPTION 2 – CREDIT TRANSFER:** There is an existing balance of 7 REU's associated with this property. The owner can dedicate the credits for use by the development if so desired. This would have the following effect:

	Water REU	Sewer REU
Credits	7	7
Estimate for 3 uses from above:	11.7	11.7
REMAINING BALANCE	4.7	4.7
Per REU Fee:	x \$7,900	x \$7,200
TOTAL DUE EACH:	\$37,130.00	\$33,840.00
COMBINED TOTAL AMOUNT DUE:	\$70,	970.00

#### Connection Fees must be paid at time of land use permit issuance.

A meter package may also need to be purchased including the appropriate sized meter and a MIU (meter interface unit). Should you have any questions please feel free to contact me at 810-227-5225.

SUPERVISOR

Gary T. McCririe

CLERK Paulette A. Skolarus

**TREASURER** Robin L. Hunt

MANAGER Michael C. Archinal

#### TRUSTEES

H. James Mortensen Jean W. Ledford Todd W. Smith Linda Rowell

#### **COVER SHEET FOR**

#### SECOND AMENDMENT TO PLANNED UNIT DEVELOPMENT AGREEMENT

#### FOR PHASE I AND PHASE II LAND

#### BETWEEN

#### RLG HOWELL LLCAND GCG HOWELL LLC

#### AND

#### **GENOA PLAZA, LLC**

#### AND

#### **TOWNSHIP OF GENOA**

DATED\_\_\_\_\_, 2017

Prepared By and After recording Return to: Karyn M. Klemptner, Esq. 31000 Northwestern Highway, Suite 100 Farmington Hills, Michigan 48334

#### STATE OF MICHIGAN COUNTY OF LIVINGSTON GENOA CHARTER TOWNSHIP

#### SECOND AMENDMENT TO PLANNED UNIT DEVELOPMENT AGREEMENT

This Second Amendment to Planned Unit Development Agreement ("Agreement") is made and entered into this \_\_\_\_\_ day of April, 2017, by and between **RLG HOWELL LLC**, a Michigan limited liability company, **GCG HOWELL LLC**, a Michigan limited liability company, with offices at 10050 Innovation Drive, Suite 100, Dayton, Ohio 45342 (collectively, the "Owner"); **GENOA PLAZA, LLC**, a Michigan limited liability company, whose address is 28265 Beck Road, Suite C-2, Wixom, Michigan 48393 ("GP"), and **GENOA CHARTER TOWNSHIP**, a Michigan municipal corporation, whose address is 2911 Dorr Road, Brighton, Michigan 48116 ("Township").

#### **RECITATIONS**

**WHEREAS**, Owner was the owner of certain real property situated in the Genoa Charter Township, Livingston County, and State of Michigan, more particularly described in that certain Planned Unit Development Agreement dated April 6, 1999, and recorded at Liber 2609, Page 0205 of the records of Livingston County, Michigan (the "Phase I PUD").

**WHEREAS**, Owner is the owner of certain adjacent real property situated in the Genoa Charter Township, Livingston County, and State of Michigan, more particularly described in that certain Planned Unit Development Agreement For Phase II Land dated August 17, 2009, and recorded at 2009R-023916 of the records of Livingston County, Michigan (the "Phase II PUD").

**WHEREAS**, the Phase I PUD and the Phase II PUD where amended by a certain Amendment to Planned Unit Development Agreement dated June 18, 2015, and recorded at 2015R-021742 with the records of Livingston County, Michigan ("First Amendment").

**WHEREAS**, Owner has since sold to GP a portion of the real property located within Phase II PUD (referred to as Lot A and Lot A1 of the Phase II PUD) collectively the "GP Parcel", as more particularly described in Exhibit A attached hereto.

**WHEREAS**, Owner, GP, and Township have agreed to amend Phase II PUD and First Amendment, subject to the terms and conditions set forth in this Agreement.

**NOW, THEREFORE**, in consideration of the mutual covenants and agreement set forth herein, Owner, GP, and the Township hereby agree as follows:

1. <u>Article I, General Terms of Agreement</u>, subsection 1.3 of the Phase II PUD, shall be amended to add thefollowing language:

"Notwithstanding anything to the contrary contained in the Phase II PUD, the land uses which will be permitted and which may be developed on Lot A under the Phase II PUD shall hereby amended to include any of permitted land uses identified for Lot A in the Phase II PUD as well as any of the land uses depicted on Exhibit B attached hereto."

2. <u>Article I, General Terms of Agreement</u>, subsection 1.5 of the Phase II PUD, shall be amended to add the following additional subparagraph D:

D. Notwithstanding anything to the contrary contained in the Phase II PUD, the configuration of Lot A under the Phase II PUD shall be as depicted on Exhibit B attached hereto. Township hereby approves the setbacks and the configuration of the improvements on Lot A as depicted on Exhibit B attached hereto.

3. <u>Article I, General Terms of Agreement</u>of the Phase II PUD, shall be amended to add the following additional subsection 1.9:

1.9 The GP Parcel shall be subject to the terms and conditions of the Phase II PUD, subject to the provisions of this Agreement.

4. <u>Article II, Land Use Authorization</u>, subsection 2.8 of the Phase II PUD, shall be amended to provide that Lot A may have a minimum Rear Yard of 3 Feet.

5. <u>Article III, Curb Cuts and Off-Site Transportation Improvements</u>, subparagraph M of subsection 3.2 shall hereby be deleted in its entirety, and the following language shall be substituted in its stead:

 M. Lot A shall have a restricted right-in/right out access to Grand Oaks as depicted on Exhibit B attached hereto. Moreover, Lowes shall be permitted to retain direct access to Grand Oaks as depicted on Exhibit B attached hereto.

6. In the event of a conflict in terms, the terms of this Amendment shall have priority over the term of the Phase I PUD agreement, the Phase II PUD agreement, and First Amendment.

#### [SIGNATURES TO FOLLOW ON NEXT PAGE]

APPROVED by Owner and GP on this	day of	, 2017.
----------------------------------	--------	---------

WITNESSES:

RLG HOWELL LLC, a Michigan limited liability company

By: Randall L. Gunlock, Trustee under the Amended Revocable Trust Agreement Dated May 30, 2013, Randall L. Gunlock, Grantor, Managing Member

By: Randall L. Gunlock Its: Trustee

GCG HOWELL LLC, a Michigan limited liability company

By:Glenn C. GunlockIts:Managing Member

GENOA PLAZA,LLC, a Michigan limited liability company

By: Karam Bahnam Its: Member STATE OF OHIO ) ) SS:

COUNTY OF MONTGOMERY )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2017, by Randall L. Gunlock, the Trustee under the Amended Revocable Trust Agreement Dated May 30, 2013, Randall L. Gunlock, Grantor, Managing Member of RLG Howell LLC, a Michigan limited liability company, on behalf of the company.

Notary Public,\_\_\_\_\_, County, OH

Acting in \_\_\_\_\_ County, OH My Commission Expires:\_\_\_\_\_

#### STATE OF OHIO ) ) SS: COUNTY OF MONTGOMERY )

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2017, by Glenn C. Gunlock, the Managing Member of GCG Howell LLC, a Michigan limited liability company, on behalf of the company.

Notary Public,	
	, County, OH
Acting in	County, OH
My Commission E	xpires:

STATE OF MICHIGAN ) ) SS: COUNTY OF\_\_\_\_\_ )

The foregoing instrument was acknowledged before me the \_\_\_\_ day of \_\_\_\_\_, 2017, by Karam Bahnam, as Member of Genoa Plaza, LLC, a Michigan limited liability company, on behalf of the company.

\_

Notary Public,\_\_\_\_\_\_, County, MI Acting in \_\_\_\_\_, County, MI My Commission Expires:\_\_\_\_\_

APPROVED by the Township Board for the Township of Genoa on the \_\_\_\_\_ day of \_\_\_\_\_, 2017.

#### TOWNSHIP OF GENOA

		By: Its:
		By: Its:
STATE OF MICHIGAN		
COUNTY OF LIVINGSTON	) SS: )	

The foregoing instrument was acknowledged before me the \_\_\_\_ day of \_\_\_\_\_, 2017, by \_\_\_\_\_, who was duly authorized by Genoa Township Board to sign this Second Amendment on behalf of Genoa Township and who acknowledged the same to be his/her free act and deed.

My Commission Expires:\_\_\_\_\_

STATE OF MICHIGAN ) ) SS: COUNTY OF LIVINGSTON )

The foregoing instrument was acknowledged before me the \_\_\_\_ day of \_\_\_\_\_, 2017, by \_\_\_\_\_, who was duly authorized by Genoa Township Board to sign this Second Amendment on behalf of Genoa Township and who acknowledged the same to be his/her free act and deed.

Notary Public,	
, (	County, MI
Acting in	_ County, MI
My Commission Expires:	

### EXHIBITS

Exhibit A Legal Description for GP Parcel

Exhibit B Depiction of Lot A

#### EXHIBIT A

#### **LEGAL DESCRIPTION OF GP PARCEL**

Part of the Northeast 1/4 of Section 8, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the Northeast Corner of Section 8; thence along the North line of Section 8, S87°16'42''W, 3.27 feet, to the construction centerline of Latson Road; thence along the construction centerline of Latson Road, the following three (3) courses: 1) southerly along an arc right, having a length of 159.72 feet, a radius of 10000.00 feet, a central angle of 00°54'55", and a long chord which bears S00°40'20"W, 159.72 feet; 2) S01°07'48"W, 913.15 feet; 3) southerly along an arc left, having a length of 148.82 feet, a radius of 10000.00 feet, a central angle of 00°51'10", and a long chord which bears S00°42'13"W, 148.82 feet, to the Point of Intersection of the construction centerline of Latson Road and the construction centerline of Relocated Grand Oaks Drive; thence along the construction centerline of Relocated Grand Oaks Drive, S89°48'26"W, 159.53 feet; thence N00°15'45"E, 40.00 feet, to the POINT OF BEGINNING of the Parcel to be described; thence along the northerly Right of Way line of Relocated Grand Oaks Drive, S89°48'26"W, 105.82 feet; thence N10°21'54"E, 317.42 feet; thence N12°59'10"E, 332.05 feet; thence S79°09'02"E, 22.66 feet; thence N11°14'53"E, 360.22 feet; thence along the Westerly Right of Way line of Latson Road, the following two (2) courses: 1) S01°07'48"W, 874.11 feet; 2) southerly along an arc left, having a length of 10.59 feet, a radius of 10060.00 feet, a central angle of 00°03'37", and a long chord which bears S01°05'59"W, 10.59 feet; thence along a limited access right of way line, S45°17'49"W, 142.07 feet, to the POINT OF BEGINNING, containing 2.31 acres, more or less, and including the use of Latson Road and Grand Oaks Drive. Also subject to any other easements or restrictions of record.

Parcel Identification No.: 11-08-200-018

#### EXHIBIT B

#### **DEPICTION OF LOT A**

## **PROPERTY DESCRIPTION:**

PROPERTY DESCRIPTION AS SUPPLIED:

### PARCEL 1:

PART OF THE NORTHEAST 1/4 OF SECTION 8, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SECTION 8; THENCE ALONG THE NORTH LINE OF SECTION 8, S 87°16'42" W, 3.27 FEET, TO THE CONSTRUCTION CENTERLINE OF LATSON ROAD; THENCE ALONG THE CONSTRUCTION CENTERLINE OF LATSON ROAD, THE FOLLOW ) SOUTHERLY ALONG AN ARC RIGHT, HAVING A LENGTH OF 159.72 FEET, A RADIUS OF 10000.00 FEET, A CENTRAL ANGLE OF 00°54'55 (3) COURSES AND A LONG CHORD WHICH BEARS S 00°40'20" W 159 72 FEET: 2) S 01°07'48" W 913 15 FEET: 3) SOUTHERLY ALONG AN ARC LEFT OF 148 82 FFFT. A RADIUS OF 10000.00 FEET. A CENTRAL ANGLE OF 00°51'10", AND A LONG CHORD WHICH BEARS S 00°42'13" W, POINT OF INTERSECTION OF THE CONSTRUCTION CENTERLINE OF LATSON ROAD AND THE CONSTRUCTION CEN OAKS DRIVE: THENCE ALONG THE CONSTRUCTION CENTERLINE OF RELOCATED GRAND OAKS DRIVE, S 89°48'26" N 00°15'45" E. 40.00 FEET. TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED: THENCE ALONG THE NORTHERLY RIGHT OF WAY LINE O RELOCATED GRAND OAKS DRIVE, S 89°48'26" W, 105.82 FEET; THENCE N 10°21'54" E, 317.42 FEET; THENCE N 12°59'10" E, 332.05 FEET; THENCE S 79°09'02" E, 22.66 FEET; THENCE N 11°14'53" E, 360.22 FEET; THENCE ALONG THE WESTERLY RIGHT OF WAY LINE OF LATSON ROAD, THE FOLLOWING TWO (2) COURSES: 1) S 01°07'48" W, 874.11 FEET; 2) SOUTHERLY ALONG AN ARC LEFT, HAVING A LENGTH OF 10.59 FEET, A RADIUS OF 10060.00 FEET, A CENTRAL ANGLE OF 00°03'37", AND A LONG CHORD WHICH BEARS S 01°05'59" W, 10.59 FEET; THENCE ALONG A LIMITED ACCESS RIGHT OF WAY LINE, S 45°17'49" W. 142.07 FEET, TO THE POINT OF BEGINNING, CONTAINING 2.31 ACRES, MORE OR LESS, AND INCLUDING THE USE OF LATSON ROAD AND GRAND OAKS DRIVE. ALSO SUBJECT TO ANY OTHER EASEMENTS OR RESTRICTIONS OF RECORD.

### CONSTRUCTION NOTES

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING NOTES AND ANY WORK INVOLVED SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. 1. THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.

2. DO NOT SCALE THESE DRAWINGS AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.

3. A GRADING PERMIT FOR SOIL EROSION-SEDIMENTATION CONTROL SHALL BE OBTAINED FROM THE GOVERNING AGENCY PRIOR TO THE START OF CONSTRUCTION.

4. IF DUST PROBLEM OCCURS DURING CONSTRUCTION, CONTROL WILL BE PROVIDED BY AN APPLICATION OF WATER, EITHER BY SPRINKLER OR TANK TRUCK. 5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS AND SPECIFICATIONS.

6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED TOWNSHIP, COUNTY, AND STATE OF MICHIGAN PERMITS. 7. PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY

DESIGNED AND CONSTRUCTED.

8. ALL BARRIER-FREE FEATURES SHALL BE CONSTRUCTED TO MEET ALL LOCAL, STATE AND A.D.A. REQUIREMENTS.

- 9. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO THE START OF
- CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN

HEREON BEFORE BEGINNING CONSTRUCTION. 10. THE CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND RIGHTS-OF-WAY, PUBLIC OR PRIVATE, PRIOR TO THE START OF CONSTRUCTION.

11. THE CONTRACTOR SHALL COORDINATE WITH ALL OWNERS TO DETERMINE THE LOCATION OF EXISTING LANDSCAPING, IRRIGATION LINES & PRIVATE UTILITY LINES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING LANDSCAPING, IRRIGATION LINES, AND PRIVATE UTILITY LINES.

12. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT.

13. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.

14. THE CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.

15. THE CONTRACTOR SHALL CALL MISS DIG A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.

16. ALL EXCAVATION UNDER OR WITHIN 3 FEET OF PUBLIC PAVEMENT, EXISTING OR PROPOSED SHALL BE BACKFILLED AND COMPACTED WITH SAND (MDOT CLASS II). 17. ALL PAVEMENT REPLACEMENT AND OTHER WORKS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE

TOWNSHIP, INCLUDING THE LATEST MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

18. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.

19. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY DELAY OR INCONVENIENCE DUE TO THE MATERIAL SHORTAGES OR RESPONSIBLE DELAYS DUE TO THE OPERATIONS OF SUCH OTHER PARTIES DOING WORK INDICATED OR SHOWN ON THE PLANS OR IN THE SPECIFICATION OR FOR ANY REASONABLE DELAYS IN CONSTRUCTION DUE TO THE ENCOUNTERING OR EXISTING UTILITIES THAT MAY OR MAY NOT BE

SHOWN ON THE PLANS. 20. DURING THE CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT PERFORM WORK BY PRIVATE AGREEMENT WITH PROPERTY OWNERS ADJACENT TO THE PROJECT.

21. IF WORK EXTENDS BEYOND NOVEMBER 15, NO COMPENSATION WILL BE DUE TO THE CONTRACTOR FOR ANY WINTER PROTECTION MEASURES THAT MAY BE REQUIRED BY THE ENGINEER.

22. NO TREES ARE TO BE REMOVED UNTIL MARKED IN THE FIELD BY THE ENGINEER.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE CONSTRUCTION LIMITS INCLUDING BUT NOT LIMITED TO EXISTING FENCE, LAWN, TREES AND SHRUBBERY

24. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE NORMAL CONSTRUCTION LIMITS OF THE PROJECT SHALL BE SODDED OR SEEDED AS SPECIFIED OR DIRECTED BY THE ENGINEER.

25. ALL ROOTS, STUMPS AND OTHER OBJECTIONABLE MATERIALS SHALL BE REMOVED AND THE HOLE BACKFILLED WITH SUITABLE MATERIAL. WHERE GRADE CORRECTION IS REQUIRED, THE SUBGRADE SHALL BE CUT TO CONFORM TO THE CROSS-SECTION AS SHOWN IN THE PLANS.

26. TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SIGNS AND TRAFFIC CONTROL DEVICES. FLAG PERSONS SHALL BE PROVIDED BY THE CONTRACTOR IF DETERMINED NECESSARY BY THE ENGINEER. ALL SIGNS SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AT NO COST TO THE TOWNSHIP. NO WORK SHALL BE DONE UNLESS THE

APPROPRIATE TRAFFIC CONTROL DEVICES ARE IN PLACE. 27. ALL DEMOLISHED MATERIALS AND SOIL SPOILS SHALL BE REMOVED FROM THE SITE AT NO ADDITIONAL COST, AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

28. AFTER REMOVAL OF TOPSOIL, THE SUBGRADE SHALL BE COMPACTED TO 95% OF ITS UNIT WEIGHT.

29. ALL GRADING IN THE PLANS SHALL BE DONE AS PART OF THIS CONTRACT. ALL DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SUBGRADE PRIOR TO COMPACTING.

30. NO SEEDING SHALL BE DONE AFTER OCTOBER 15 WITHOUT APPROVAL OF THE ENGINEER. 31. ANY EXISTING APPURTENANCES SUCH AS MANHOLES, GATE VALVES, ETC. SHALL BE ADJUSTED TO THE PROPOSED GRADE AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

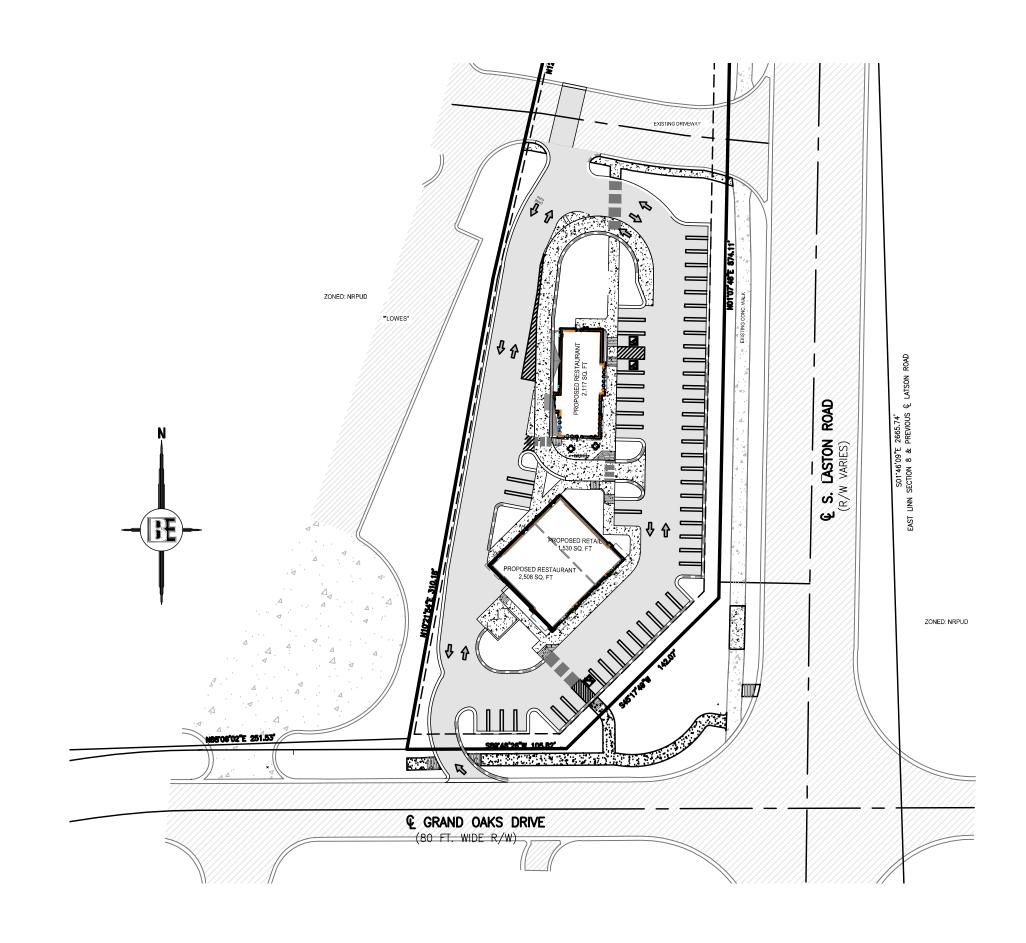
32. SOIL EROSION MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BEEN RE-ESTABLISHED. 33. ALL PERMANENT SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE MICHIGAN MUTCD MANUAL

AND SHALL BE INCIDENTAL TO THE CONTRACT. 34. ACCESS ROADS TO THE SITE SHALL BE MAINTAINED DURING CONSTRUCTION AND SHALL BE CONSTRUCTED TO BE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS.

## INDEMNIFICATION STATEMENT

THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.

# SITE PLAN FOR **GENOA PLAZA** PART OF NE QUARTER, OF SECTION 8 GENOA TOWNSHIP, LIVINGSTON COUNTY, MI

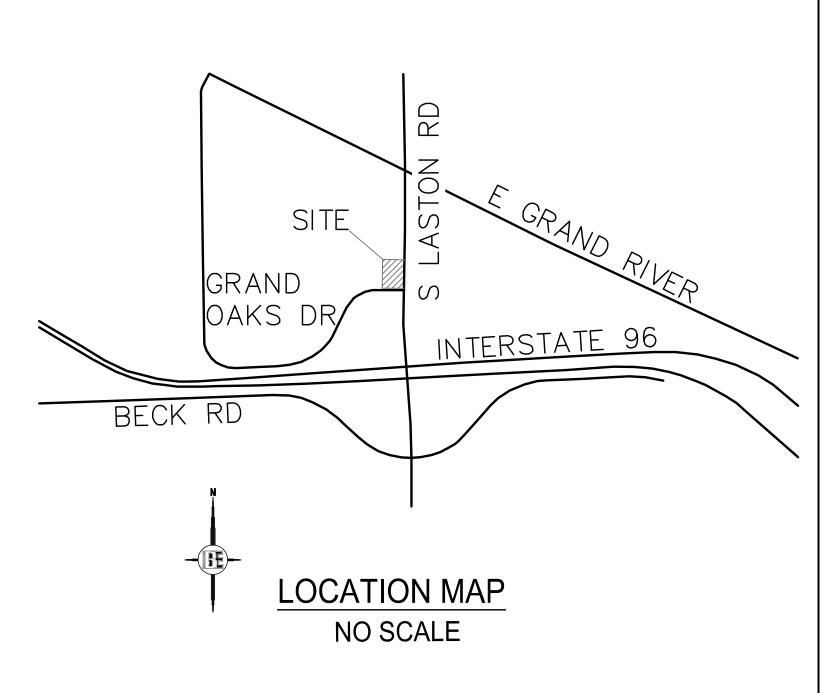


**OVERALL SITE MAP** NO SCALE



**ARCHITECT:** 

NORR **DETROIT**, **MI 48226** CONTACT: BRIAN COBURN PHONE: 313.324.3140



	SHEET INDEX
SHEET NO.	DESCRIPTION
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10	COVER SHEET EXISTING CONDITIONS/DEMOLITION PLAN SITE PLAN GRADING & DRAINAGE PLAN UTILITY PLAN LANDSCAPE PLAN LIGHTING PLAN SOIL EROSION CONTROL PLAN CONSTRUCTION DETAILS CONSTRUCTION DETAILS & STORM CALCS
	DRAWINGS PREPARED BY ARCHITECT
A2-01 LP-02 EL-01 EL-02	BUILDING 'A' – FLOOR PLAN BUILDING 'B' – FLOOR PLAN BUILDING 'A' EXTERIOR ELEVATIONS BUILDING 'B' EXTERIOR ELEVATIONS

## GENOA PLAZA

**PREPARED FOR:** 

USA 2 GO 28265 BECK ROAD, SUITE C-2 WIXOM, MI 48393 CONTACT: KEVIN BAHNAM 248.773.7992

 $\frown$ 

U

9-21-16 ISSUE DATE: 8/22/10

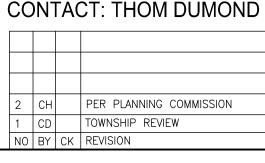
DATE JOB NO. 16-243

5-3-17

**PREPARED BY:** 



Engineers Surveyors Planners Landscape Architects 3121 E. GRAND RIVER AVE. HOWELL, MI. 48843 800.246.6735 FAX 517.548.1670

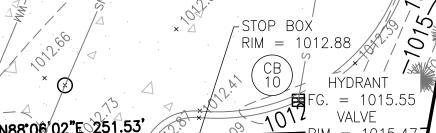


USA 2 GO

150 W. JEFFERSON AVE., SUITE 1300 EMAIL: BRIAN.COLBURN@NORR.COM

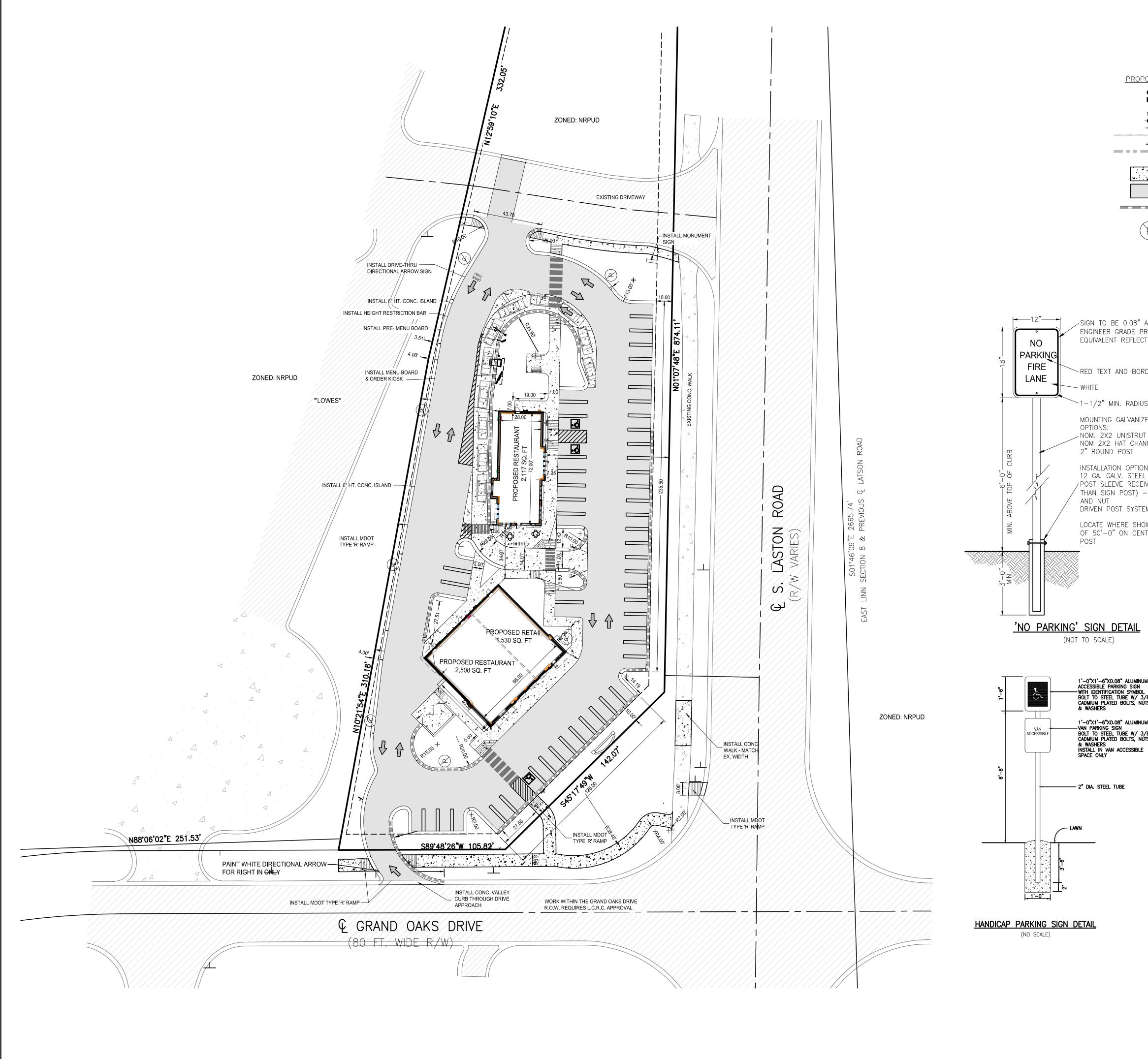
$\begin{array}{rcrcrcr} \text{CB OT} \\ \text{RIM 1019.81} \\ \text{E} & 12" \text{ INV.} &= 1014.45 \\ \text{SW } & 12" \text{ INV.} &= 1014.35 \end{array}$	
CB 02 RIM 1019.75 W 12"INV. = 1015.15	CB 12 RIM 1016.61 W 12" INV. = 1011.88
CB 03 RIM 1015.95 W 24" INV. = 1003.20 SE 24" INV. = 1003.30 N 12" INV. = 1009.55	N 15" INV. = 1008.70
CB 04 RIM 1016.16 S 12" INV. = 1011.66 N 12" INV. = 1011.96 CB 05	CB 14 RIM 1012.19 S 15" INV. = 1008.59 N 15" INV. = 1008.79 W 8" INV. = 1009.19
RIM 1016.24 S 12" INV. = 1012.79	MH 15 RIM 1015.75 N 36"INV. = 999.30
CB 06 RIM 1012.31 E 24" INV. = 1006.16 W 24" INV. = 1006.26	S 36" INV. = 999.20 NE 12" INV. = 1009.37 E 12" INV. = 1009.37
N 12" INV. = 1006.36 S 8" INV. = 1009.56	CB 16 RIM 1015.08 SW 12"INV. = 1011.15
CB 07 RIM 1011.89 W 24" INV. = 1007.69 E 24" INV. = 1007.79 CB 08	CB 17 RIM 1014.22 N 36" INV. = 999.22 S 36" INV. = 999.22 NE 10" INV. = 1000.00
RIM 1013.02 NW 24" INV. = 1007.72 NE 24" INV. = 1008.42 N 15" INV. = 1008.82	NE 12" INV. = 1008.66 CB 18 RIM 1012.75 S 15" INV. = 1008.75 NW 15" INV. = 1008.85
CB 09 RIM 1013.28 S 12"INV. = 1008.68	W 8" INV. = 1009.75 CB 19
CB 10 RIM 1011.41 N 15" INV. = 1008.81	RIM 1012.75 SE 15" INV. = 1009.05

VALVE RIM = 1014.21----





<u>LE</u>	<u>GEND</u>
900	EXISTING CONTOUR
+ 922.00	EXISTING SPOT ELEVATION
	STORM DRAINAGE FLOW
_o£	POWER POLE
Ļ	GUY WIRE
Δ	HYDRANT
8	GATE VALVE
$\otimes$	WATER MANHOLE
0	MANHOLE
•	STORM CATCH BASIN (BEEHIVE)
	STORM CATCH BASIN (SQUARE)
(	STORM INVERT
•	WELL
PAD	TRANSFORMER PAD
	TELEPHONE RISER
Ī	U.G. TELEPHONE MARKER
⊡ ⊛ <sub>G</sub>	GAS METER
G	GAS RISER
G	U.G. GAS MARKER
E	ELECTRICAL RISER
E	U.G. ELECTRIC MARKER
ES	CABLE TV RISER
R	U.G. CABLE TV MARKER
MB	MAILBOX
	AIR CONDITIONING UNIT
÷	LIGHT POLE
÷	ORNAMENTAL LIGHT
	SIGN
$\bigcirc$	DECIDUOUS TREE
*	CONIFEROUS TREE
	SOIL BORING
0	STEEL ROD SET
•	STEEL ROD/PIPE FOUND
۲	MONUMENT
	SECTION CORNER
<b>U</b>	MARSH SYMBOL
—	SANITARY SEWER
—	WATER MAIN
—st—	STORM SEWER
— G —	GAS MAIN
— E —	ELECTRIC
— T —	TELEPHONE
— OH—	OVERHEAD WIRES
—x——	FENCE
GP	GAS PUMP
$\blacktriangle$	ANTENNA
8	SATELLITE DISH
NP	NEWSPAPER BOX
PM	PARKING METER
РВ	PHONE BOOTH

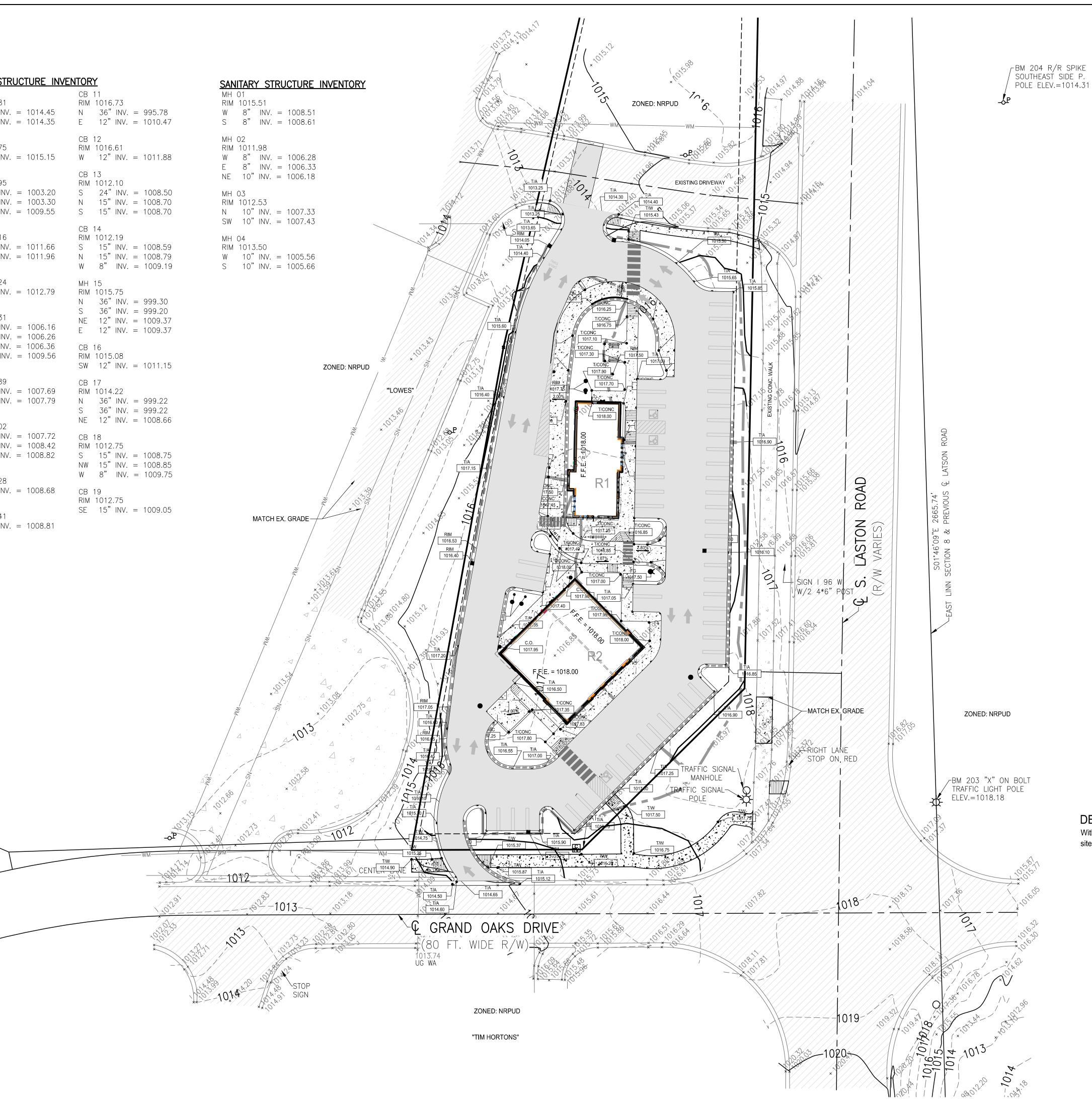


25       50       10         SCALE: 1 INCH = 30 FEET         ILEGEND         CONSED (PR)       EXISTING (EX)         Image: Colspan="2">O MANHOLE         Image: Colspan="2">Image: Colspan="2"         Image: Colspan="2"            <	THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE DRAWINGS ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES ADD PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL DETENTION OF DETILIPIES AND ADD REPORTING IF THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLANS. THE PLANS.
" ALUMINUM WITH PRISMATIC (EOP) OR ECTIVE SHEETING ORDER MUS ALL CORNERS NIZED STEEL POST RUT HANNEL TONS: ELL SQ, TUBE ANCHOR SET PARKING DOTS THE HOWN WITH SPACING ENTER - 2 SIGNS PER THE SACH OR ENTER - 2 SIGNS PER THE SACH OR ENTER - 2 SIGNS PER THE SACH OR THE SACH	Engineering         Engineering         Engineering         Engineering         S121 E. GRAND RIVER AVE.         HOWELL, MI. 48843         800.246.6735 FAX 517.548.1670
NUM NUS Sol System NUS NUS Sole	FOR FOR USA 2 GO 28265 BECK ROAD, SUITE C-2 WIXOM, MI 48393 248.773.7992 STE PLAN
<ul> <li>SITE DATA</li> <li>NON-RESIDENTIAL PLANNED UNIT DEVELOPMENT (NRPUD), ZONE 1</li> <li>SITE AREA - 100,606 SQ. FT. (2.31 AC) *(AREA SOUTH OF ENTRY DRIVE IS 1.43 AC WHERE BUILDINGS ARE PLACED)</li> <li>MAX, BLDG. HT. ALLOWED - 75 FT. 5 STORIES PROVIDED 21'-8" FT.</li> <li>MAX LOT COVERAGE - 50% BUILDING, PROVIDED 10% BUILDING, 25% PERVIOUS</li> <li>SETBACKS PROVIDED <pre>FRONT - 10 FT. 63.68 FT. SIDE - 10 FT. 113.00 FT. REAR - 5 FT. 31.67 FT.</pre> </li> <li>PARKING: <pre>COFFEE HOUSE - 1 SPACE PER 70 SQ. FT. GROSS LEASABLE FLOOR AREA.         SPACE REQUIRED = 1,583 SQ. FT. = 23 SPACES</pre> STANDARD SIT-DOWN RESTAURANTS WITHOUT LIQUOR LICENSE - 1 SPACE FOR EACH 100 SQUARE FEET OF  GROSS FLOOR AREA OR ONE FOR EACH TWO SEATS, WHICHEVER IS GREATER.         SPACE REQUIRED = 2,508 SQ. FT. / 100 = 25 SPACES RETAIL -1 SPACES PER 250 GFA         SPACES REQUIRED = 1,530 S.F. / 250 = 6 SPACES         TOTAL SPACES REQUIRED = 154 SPACES         TOTAL SPACE PROVIDED = 57 SPACES (INCLUDES 3 BARRIER-FREE SPACES)</li></ul>	Bud

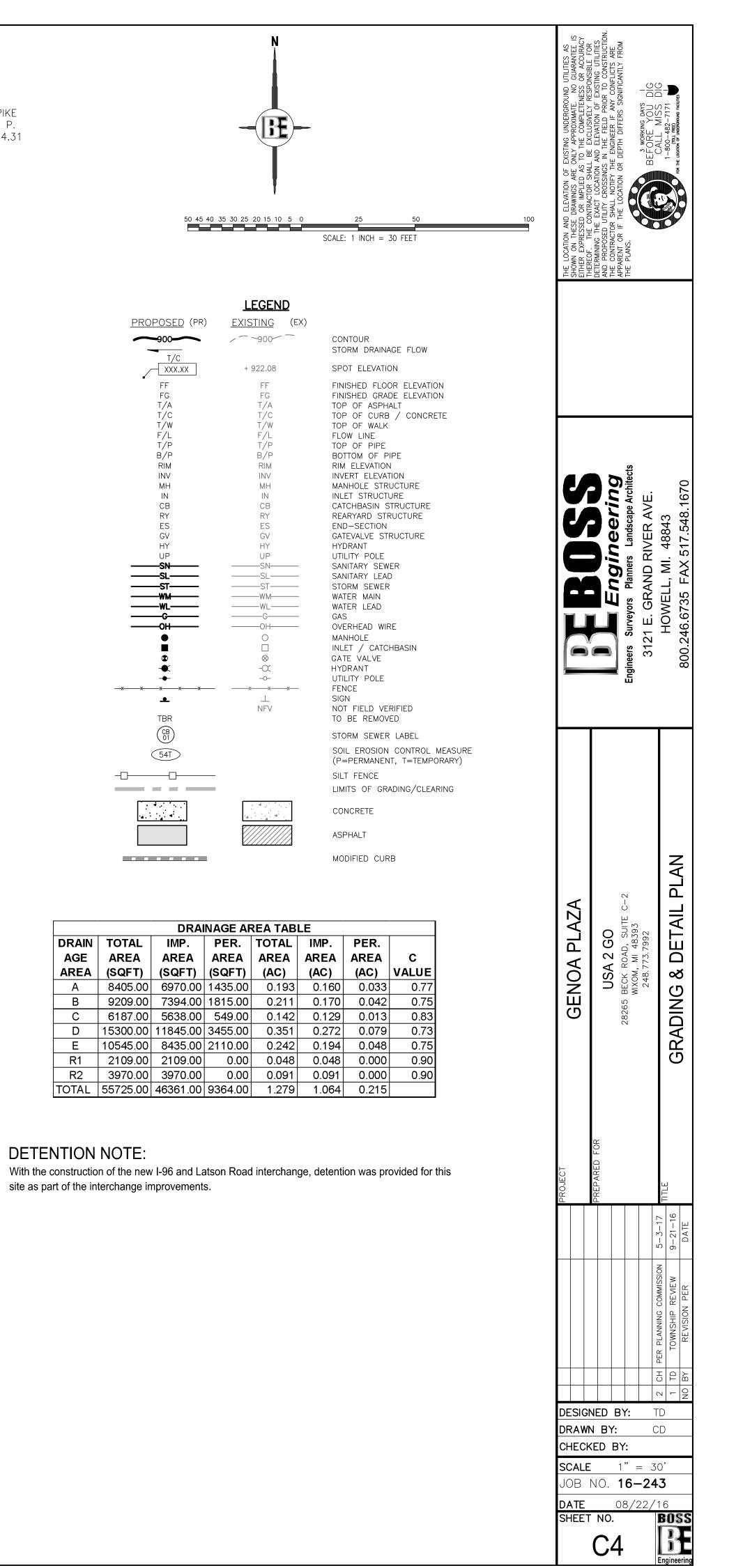
### STORM STRUCTURE INVENTORY

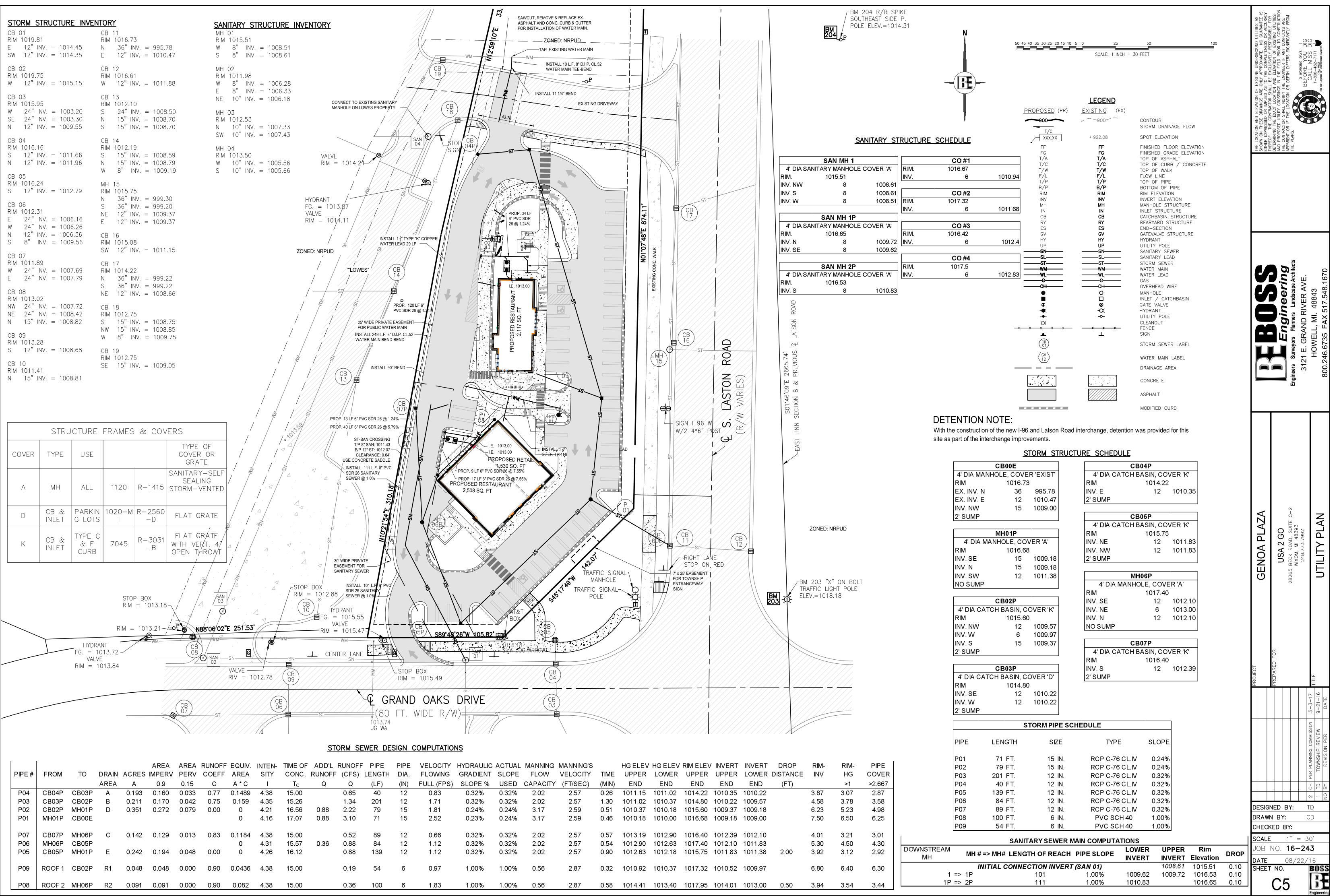
		0.1.1				<u> </u>
CB 0 RIM <sup>-</sup> E	1 1019 12"	.81 INV.	=	1014.45 1014.35	RIM N	11 1016.73 36" IN 12" IN
CB 0 RIM W	1019		=	1015.15	RIM	12 1016.61 12" IN\
SE	1015 24" 24"	INV. INV.	=	1003.20 1003.30 1009.55	RIM S N	13 1012.10 24" IN 15" IN 15" IN
Ν	1016 12" 12"	INV.	=	1011.66 1011.96	RIM S N	14 1012.19 15" IN\ 15" IN\ 8" IN
CB 0 RIM S	1016		=	1012.79	RIM	15 1015.75 36" IN <sup>v</sup>
W	1012 24" 24"	.31 INV. INV	=	1006.16 1006.26	S NE E	36" IN 12" IN 12" IN
S	8"	INV.	=	1006.36 1009.56	RIM	16 1015.08 12" INV
CB 0 RIM W E	1011 24"	.89 INV.		1007.69 1007.79	RIM N	17 1014.22 36" IN 36" IN
NE	1013 24" 24"	INV. INV.	=	1007.72 1008.42 1008.82	NE CB RIM	12" INV 18 1012.75 15" INV
CB 0 RIM	1013				W	15" IN\ 8" IN'
S CB 1 RIM	0		=	1008.68	RIM	19 1012.75 15" IN\
			=	1008.81		

	1016.7 36" II	NV. =	995.78 1010.47
	1016.6		1011.88
S	1012.1 24"    15"	NV. =	1008.50 1008.70 1008.70
S	1012.1 15" II	VIV =	1008.59 1008.79 1009.19
RIM N	36"    12"	NV. =	999.30 999.20 1009.37 1009.37
RIM	16 1015.0 12" II		1011.15
CB RIM N S NE	1014.2 36"    36"	NV. = NV. =	999.22 999.22 1008.66
	1012.7 15" II 15" II	VV. = VV. =	1008.75 1008.85 1009.75
CB RIM SE	1012.7		1009.05



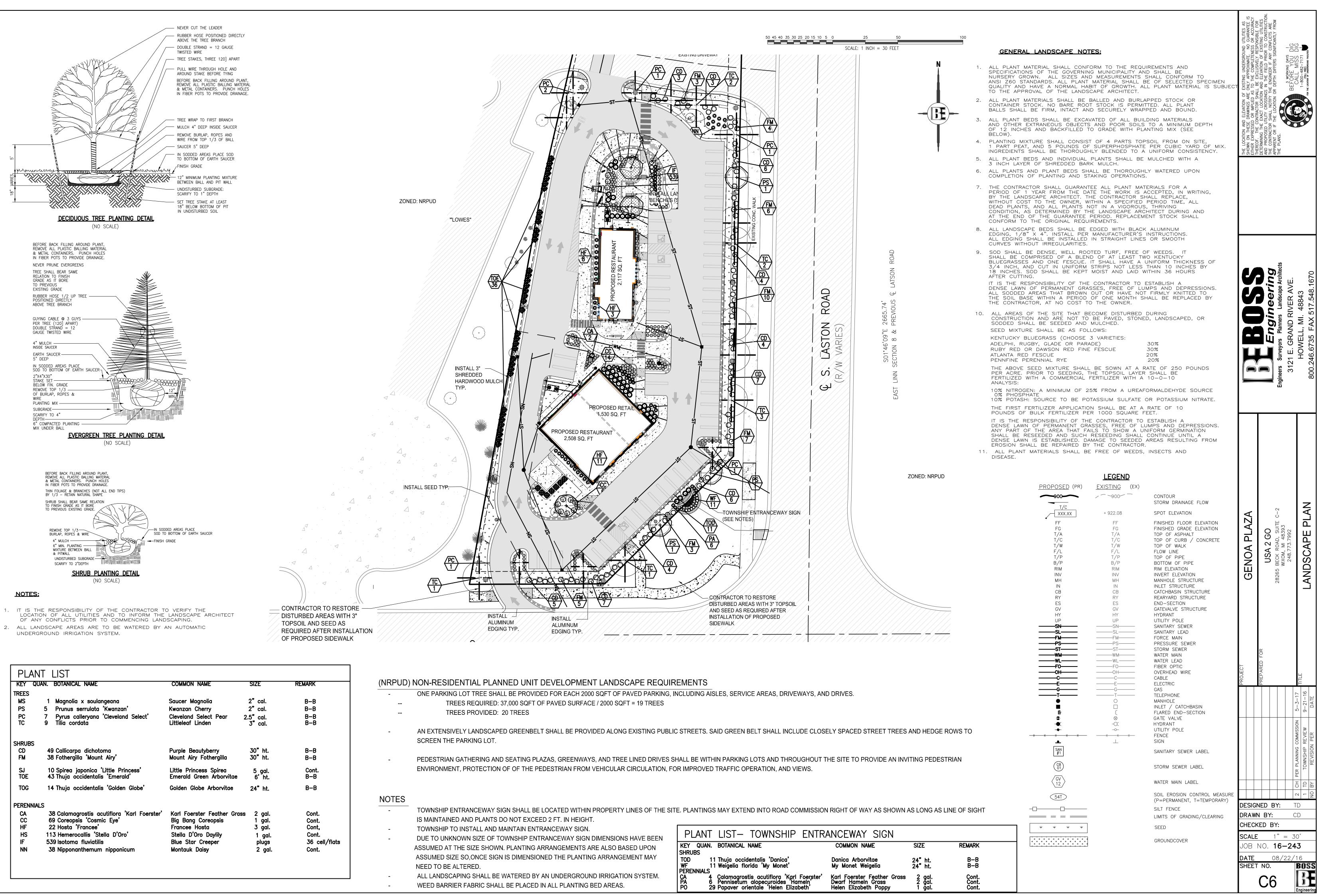
G:\16-243\dwg\16-243 Base.dwg, 5/9/2017 9:45:23 AM, AutoCAD PDF (General Documentation).pc3





					AREA	AREA	RUNOFF	EQUIV.	INTEN-	TIME OF	ADD'L	RUNOFF	PIPE	PIPE	VELOCITY	HYDRAULIC	ACTUAL	MANNING	MANNING'S		HG ELEV	HG ELEV	RIMELEV	INVERT	INVERT	DROP	RIM-	RIM-	PIPE
PIPE #	FROM	ТО	DRAIN	ACRES	IMPERV	PERV	COEFF	AREA	SITY	CONC.	RUNOFF	(CFS)	LENGTH	DIA.	FLOWING	GRADIENT	SLOPE	FLOW	VELOCITY	TIME	UPPER	LOWER	UPPER	UPPER	LOWER [	DISTANCE	INV	HG	COVER
			AREA	А	0.9	0.15	С	A * C	l	T <sub>C</sub>	Q	Q	(LF)	(IN)	FULL (FPS)	SLOPE %	USED	CAPACITY	(FT/SEC)	(MIN)	END	END	END	END	END	(FT)		>1	>2.667
P04	CB04P	CB03P	А	0.193	0.160	0.033	0.77	0.1489	4.38	15.00		0.65	40	12	0.83	0.32%	0.32%	2.02	2.57	0.26	1011.15	1011.02	1014.22	1010.35	1010.22		3.87	3.07	2.87
P03	CB03P	CB02P	В	0.211	0.170	0.042	0.75	0.159	4.35	15.26		1.34	201	12	1.71	0.32%	0.32%	2.02	2.57	1.30	1011.02	1010.37	1014.80	1010.22	1009.57		4.58	3.78	3.58
P02	CB02P	MH01P	D	0.351	0.272	0.079	0.00	0	4.21	16.56	0.88	2.22	79	15	1.81	0.24%	0.24%	3.17	2.59	0.51	1010.37	1010.18	1015.60	1009.37	1009.18		6.23	5.23	4.98
P01	MH01P	CB00E						0	4.16	17.07	0.88	3.10	71	15	2.52	0.23%	0.24%	3.17	2.59	0.46	1010.18	1010.00	1016.68	1009.18	1009.00		7.50	6.50	6.25
P07	CB07P	MH06P	С	0.142	0.129	0.013	0.83	0.1184	4.38	15.00		0.52	89	12	0.66	0.32%	0.32%	2.02	2.57	0.57	1013.19	1012.90	1016.40	1012.39	1012.10		4.01	3.21	3.01
P06	MH06P	CB05P						0	4.31	15.57	0.36	0.88	84	12	1.12	0.32%	0.32%	2.02	2.57	0.54	1012.90	1012.63	1017.40	1012.10	1011.83		5.30	4.50	4.30
P05	CB05P	MH01P	Е	0.242	0.194	0.048	0.00	0	4.26	16.12		0.88	139	12	1.12	0.32%	0.32%	2.02	2.57	0.90	1012.63	1012.18	1015.75	1011.83	1011.38	2.00	3.92	3.12	2.92
P09	ROOF 1	CB02P	R1	0.048	0.048	0.000	0.90	0.0436	4.38	15.00		0.19	54	6	0.97	1.00%	1.00%	0.56	2.87	0.32	1010.92	1010.37	1017.32	1010.52	1009.97		6.80	6.40	6.30
P08	ROOF 2	MH06P	R2	0.091	0.091	0.000	0.90	0.082	4.38	15.00		0.36	100	6	1.83	1.00%	1.00%	0.56	2.87	0.58	1014.41	1013.40	1017.95	1014.01	1013.00	0.50	3.94	3.54	3.44

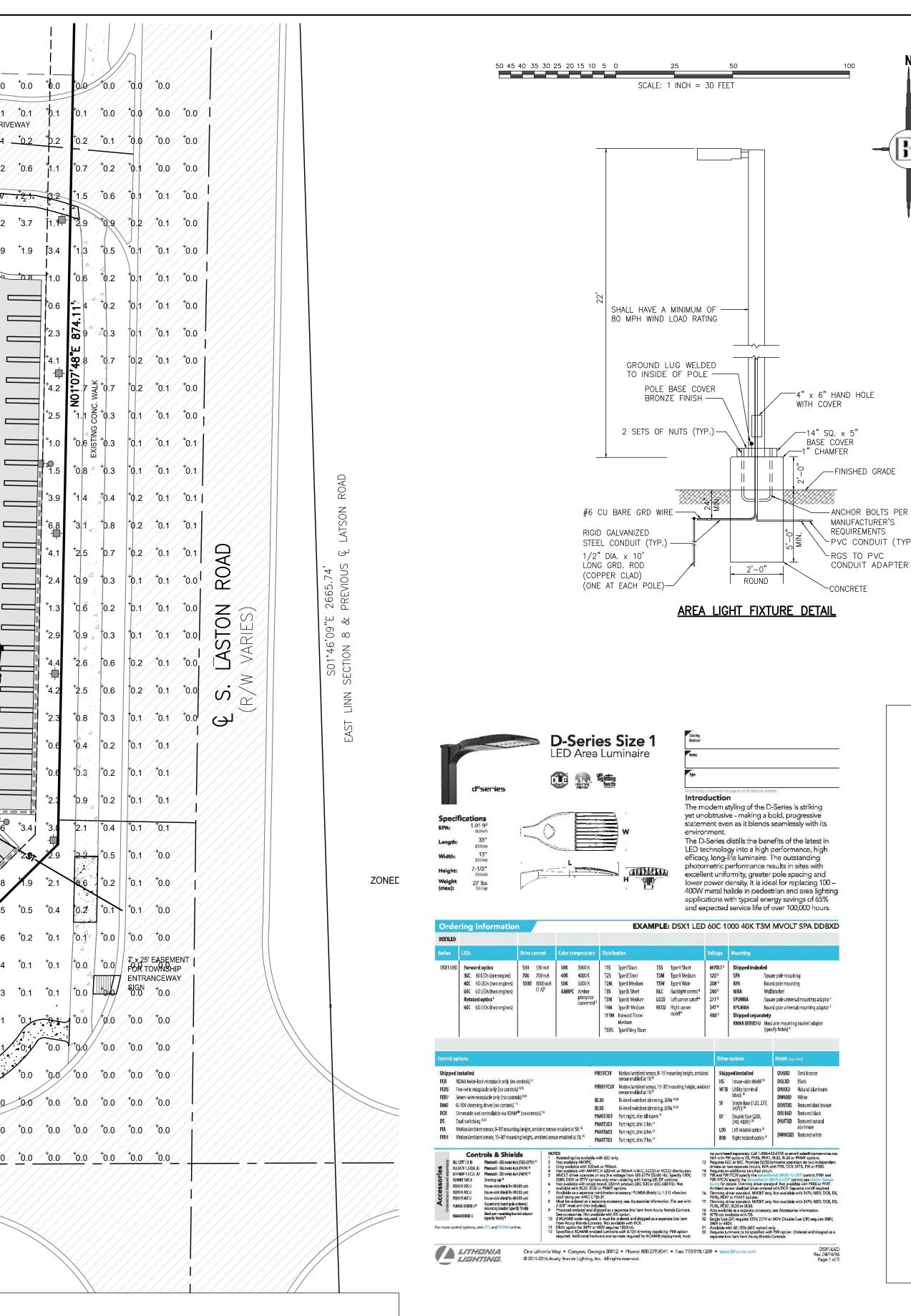
G:\16-243\dwg\16-243 Base.dwg, 5/9/2017 9:45:27 AM, AutoCAD PDF (General Documentation).pc3

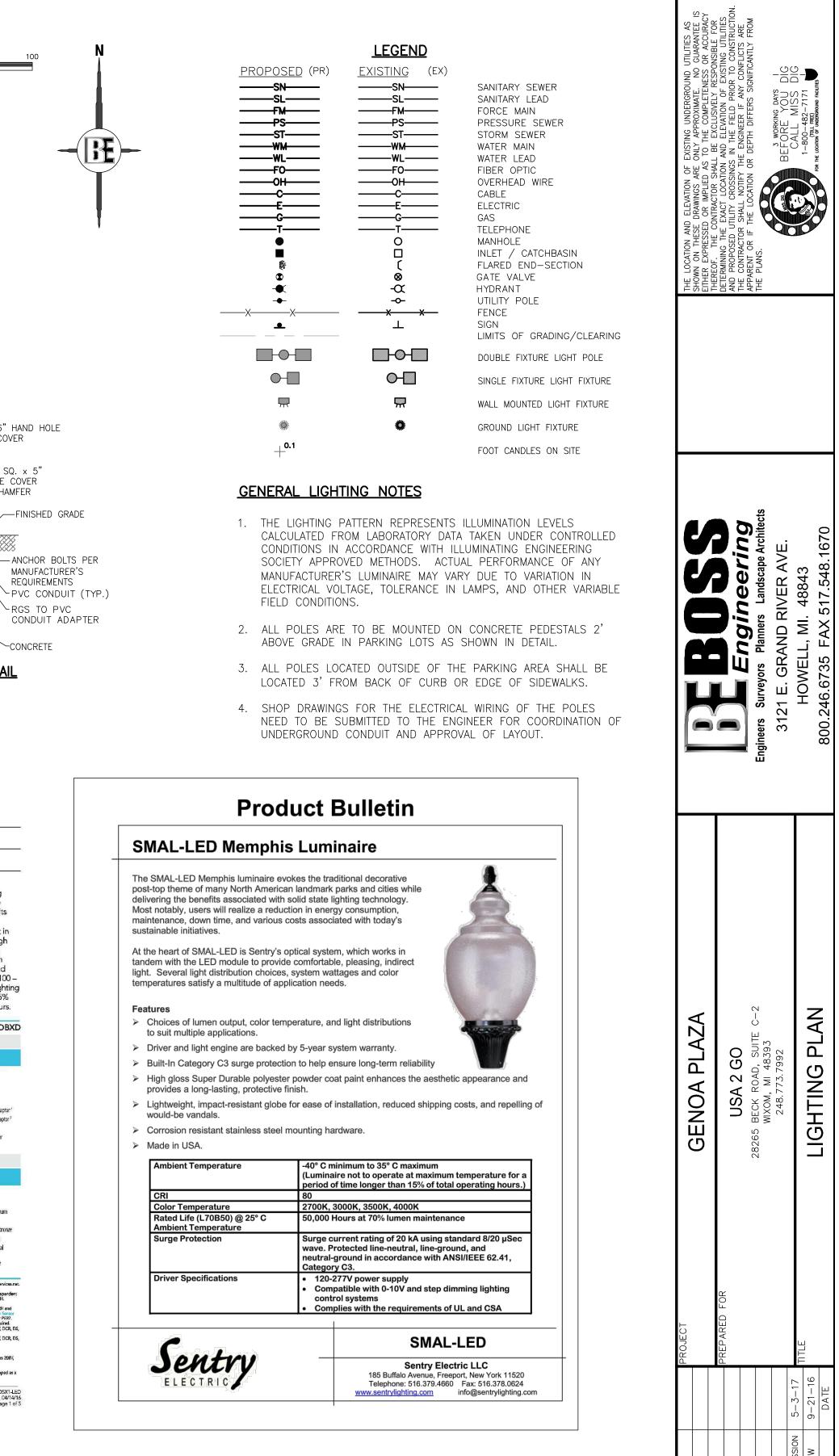


PLAN Key QU	I LIJI AN. BOTANICAL NAME	COMMON NAME	SIZE	REMARK	(NRPLID)	) NON-RESIE
-	AN. BUTANICAL NAME	COMMON NAME	SIZE			,
TREES MS	1 Magnalia y avylanacana	Sausan Magnalia	0" anl		-	ONE PARKIN
	1 Magnolia x soulangeana	Saucer Magnolia	2" cal.	B-B		TF
PS	5 Prunus serrulata 'Kwanzan'	Kwanzan Cherry	2" cal.	B-B		TF
PC TC	7 Pyrus calleryana 'Cleveland Select' 9 Tilia cordata	Cleveland Select Pear Littleleaf Linden	2.5" cal. 3" cal.	В-В В-В		
					-	AN EXTENSI
SHRUBS						SCREEN THE
CD	49 Callicarpa dichotoma	Purple Beautyberry	30"ht.	B–B		
FM	38 Fothergilla 'Mount Airy'	Mount Airy Fothergilla	30" ht.	B-B	-	PEDESTRIAN
SJ TOE	10 Spirea japonica 'Little Princess' 43 Thuja occidentalis 'Emerald'	Little Princess Spirea Emerald Green Arborvitae	5 gal. 6'ht.	Cont. B–B		ENVIRONME
TOG	14 Thuja occidentalis 'Golden Globe'	Golden Globe Arborvitae	24" ht.	B-B		
					NOTES	
PERENNIAL			•			TOWNSHIP E
CA CC	38 Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Feather Grass	2	Cont.		IS MAINTAIN
HF	69 Coreopsis 'Cosmic Eye' 22 Hosta 'Francee'	Big Bang Coreopsis Franc <del>ee</del> Hosta	1 gal. 3 gal	Cont. Cont,		
HS	113 Hemerocallis 'Stella D'Oro'	Stella D'Oro Daylily	3 gal.	Cont.	-	TOWNSHIP 1
IF	539 Isotoma fluviatilis	Blue Star Creeper	1 gal. plugs	36 cell/flats	-	DUE TO UNK
" NN	38 Nipponanthemum nipponicum	Montauk Daisy	2 gal.	Cont.		ASSUMED AT
1111		Montduk Duisy	2 gui.	Sont.		ASSUMED SI
						NEED TO BE

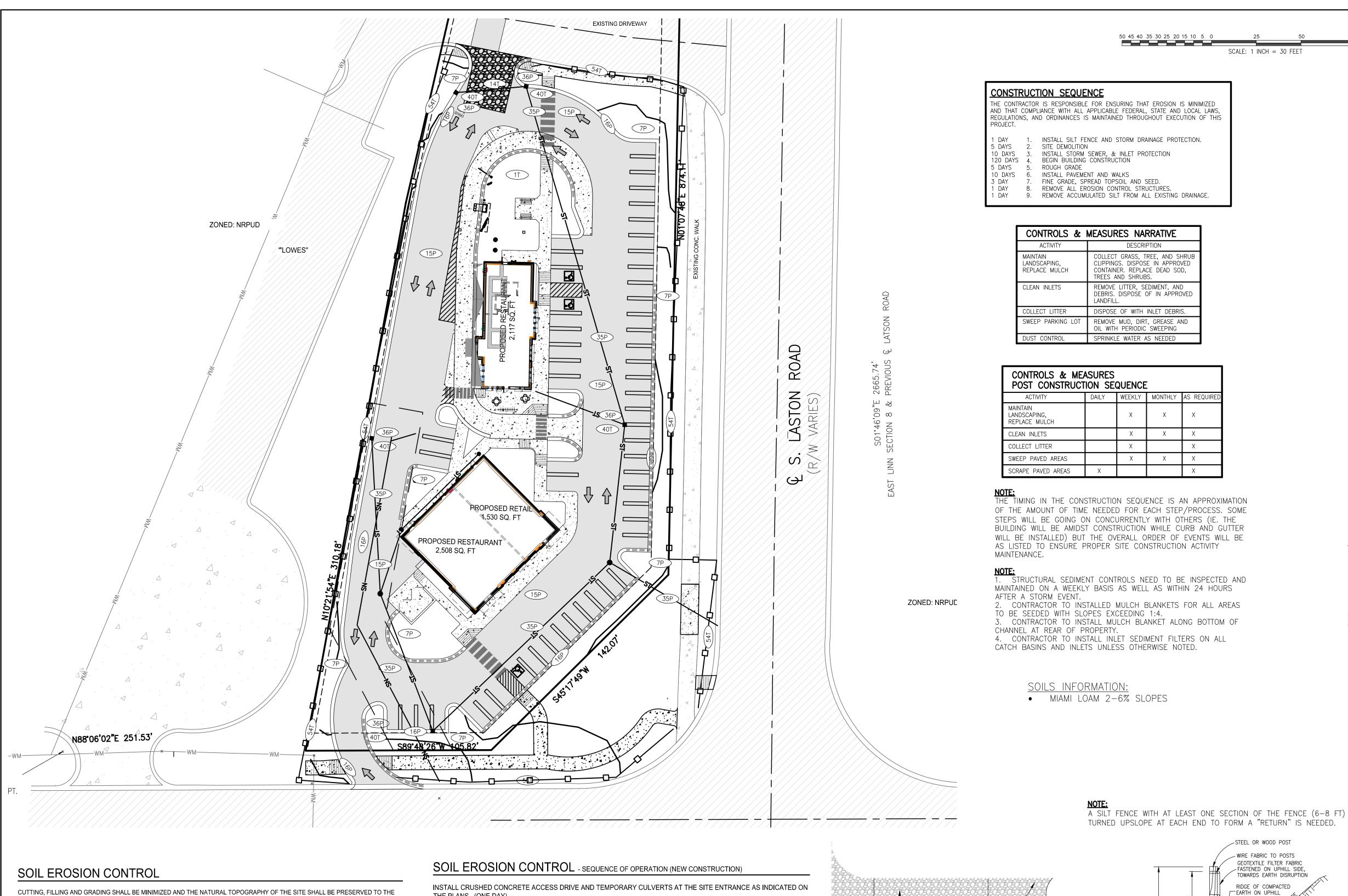
PLAN <sup>-</sup>	Г	LIST-	TOWNSHI	P ENTRA	NCEWAY	SIGN	
KEY QUAN	۱.	BOTANICAL	NAME		COMMON NAM	Æ	SIZE
SHRUBS							
TOD	11	Thuja occio	dentalis 'Danica' orida 'My Monet'		Danica Arborvi	tae	24" ht. 24" ht.
WF	11	Weigelia flo	orida 'My Monet'		My Monet Weig	gelia	24" ht
PERENNIALS			•	•			
CA PA	4	Calamagros	stis acutiflora 'K 1 alopecuroides	arl Foerster	Karl Foerster	Feather Grass	2 ga
PA	6	Pennisetum	alopecuroides	'Hameln'	Dwarf Hameln		2 ğa
PO	29	Papaver or	ientale 'Helen E	lizabeth	Helen Elizabetl	п Рорру	2 ga 2 ga 1 ga

	/ △ <sup>+</sup> 0 <b>B*06'02"E 251</b> <del></del>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	00         00<		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	+0.1       +0.0       +0.1         +0.1       +0.1       +0.1         +0.1       +0.0	0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.1       0.2       0.3       0.4       0.5       0.6       0.7       1       1       1       1       1       1       1       1       1       1       1       1       1 <th>01*46'09"E</th> <th>EAST LINN SECTION 8 &amp; PREVIOUS &amp; LATSON ROAD</th>	01*46'09"E	EAST LINN SECTION 8 & PREVIOUS & LATSON ROAD
	+0.0 +0		C GRAND OAKS DRIVE (80 FT. WIDE R/W)						
SYMBOL	to.o to	QTY.	(80 FT. WIDE R/W)		LUMENS	LLF	POLE HEIGHT	BASE HEIGHT	TOTAL
	LABEL	QTY.	(80 FT. WIDE R/W)	MINAIRE SCHEDULE	LUMENS	LLF			HEIGHT
*	LABEL	QTY. 11	(80 FT. WIDE R/W)         (80 FT. WIDE R/W)         LU         DESCRIPTION         CATALOG NUMBER         LSI GREENLEE LED LEXINGTON DECORATIVE FIXTURE         XLXM3-PT-5-LED-63-450-CW-UE-MSV-PCI120         DSX1 LED WITH (2) 30 LED LIGHT ENGINES, TYPE	MINAIRE SCHEDULE LAMP LED	LUMENS ABSOLUTE	LLF .95	8'	0'	HEIGHT 8'
	LABEL	QTY.	(80 FT. WIDE R/W)         U         DESCRIPTION         CATALOG NUMBER         LSI GREENLEE LED LEXINGTON DECORATIVE FIXTURE         XLXM3-PT-5-LED-63-450-CW-UE-MSV-PCI120	MINAIRE SCHEDULE	LUMENS	LLF			HEIGHT
*	LABEL	QTY. 11	(80 FT. WIDE R/W)         (80 FT. WIDE R/W)         LU         DESCRIPTION         CATALOG NUMBER         LSI GREENLEE LED LEXINGTON DECORATIVE FIXTURE         XLXM3-PT-5-LED-63-450-CW-UE-MSV-PCI120         DSX1 LED WITH (2) 30 LED LIGHT ENGINES, TYPE         T5M OPTIC, 4000K, @ 1050mA WITH HOUSE SIDE         DSX1 LED 60C 1000 40K T5M MVOLT HS	MINAIRE SCHEDULE LAMP LED	LUMENS ABSOLUTE	LLF .95	8'	0'	HEIGHT 8'





				Engineers Surveyors Planners Landscape Architects	3121 E. GRAND RIVER AVE.		HOWELL, MI. 48843	800.246.6735 FAX 517.548.1670
PROJECT	GENUA PLAZA			28265 BECK ROAD, SUITE C-2 Wiyom MI 48393	248.773.7992			
<u>a</u>						5-3-17	9-21-16	DATE
						CH PER PLANNING COMMISSION		BΥ
		ED B`		 Y:		∼ TE CE		NO
		ED.		Y:			<u>,                                     </u>	
	AL				= ,			
					-2			
	ATE IEE	NO	0	'ŏ/	22,	/ 1    B	0 1 <b>0</b> :	SS
	_	С		,		Ē		Eering



#### MAXIMUM POSSIBLE EXTENT, EXCEPT WHERE SPECIFIC FINDINGS DEMONSTRATE THAT MAJOR ALTERATIONS WILL STILL MEET THE PURPOSES AND REQUIREMENTS OF THIS ORDINANCE.

DEVELOPMENT SHALL BE STAGED TO KEEP THE EXPOSED AREAS OF SOIL AS SMALL AS PRACTICABLE.

SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED BETWEEN THE DISTURBED AREA AND ANY WATERCOURSES, INCLUDING RIVERS, STREAMS, CREEKS, LAKES, PONDS AND OTHER WATERCOURSES; WETLANDS; OR ROADWAYS ON OR NEAR THE SITE.

SEDIMENT RESULTING FROM ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE THAT WATER LEAVES THE SITE.

TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF WATER AROUND, THROUGH, OR AWAY FROM THE SITE SHALL BE DESIGNED TO LIMIT THE WATER FLOW TO A NON-EROSIVE VELOCITY.

TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE REMOVED AFTER PERMANENT SOIL EROSION CONTROL MEASURES HAVE BEEN IMPLEMENTED. ALL SITES SHALL BE STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES.

IF LAKES, PONDS, CREEKS, STREAMS, OR WETLANDS ARE LOCATED ON OR NEAR THE SITE, EROSION CONTROL MEASURES WHICH DIVERT RUNOFF AND TRAP SEDIMENT MUST BE PROVIDED AT STRATEGIC LOCATIONS. STRAW BALE BERMS MAY BE USED AS TEMPORARY STORMWATER DIVERSION STRUCTURES, BUT WILL NOT BE CONSIDERED SUFFICIENT FOR TRAPPING SEDIMENT. THE USE OF SEDIMENT BASINS, FILTER FABRIC, VEGETATED BUFFER STRIPS, AND ROCK FILTERS IN LIEU OF STRAW BALE BERMS SHALL BE STRONGLY ENCOURAGED. OTHER MEASURES MAY BE REQUIRED IF REASONABLY DETERMINED TO BE NECESSARY TO PROTECT A WATERCOURSE OR WETLAND.

WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHEN SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED.

PERMANENT EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 (FIFTEEN) CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

VEGETATED BUFFER STRIPS SHALL BE CREATED OR RETAINED ALONG THE EDGES OF ALL LAKES, PONDS, CREEKS, STREAMS, OTHER WATERCOURSES, OR WETLANDS,

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL RECEIVE REGULAR MAINTENANCE TO ASSURE PROPER FUNCTIONING. THE PERMANENT SOIL EROSION CONTROLS WILL BE MAINTAINED BY USA 2 GO.

THE PLANS. (ONE DAY)

INSTALL SILT FENCE OR SIMILAR APPROVED SILT BARRIER ALONG PROPERTY LINES AND AROUND SENSITIVE NATURAL FEATURES AS INDICATED ON THE PLANS. (ONE DAY)

IF INDICATED ON CONSTRUCTION PLANS, SEDIMENTATION BASINS, DETENTION POND, ETC., SHALL BE CONSTRUCTED PRIOR TO THE INSTALLATION OF ANY OTHER WORK.

STRIP EXISTING TOPSOIL, VEGETATION AND ORGANIC MATTER FROM BUILDING PAD AND PARKING AREAS. COMMENCE LAND BALANCE AND MASS GRADING OPERATIONS. MAINTAIN A MINIMUM BUFFER OF 15' OF EXISTING VEGETATION WHEREVER POSSIBLE AROUND SITE PERIMETER. STOCK PILES SHOULD BE LOCATED AWAY FROM EXISTING DRAINAGE FACILITIES. (TWO DAYS)

EXCAVATE AND INSTALL UNDERGROUND UTILITIES. INSTALL PEASTONE INLET FILTERS AROUND ALL NEW STORM SEWER FACILITIES AS INDICATED ON THE PLANS. EXISTING AND PROPOSED STORM SEWER FACILITIES SHALL BE PROTECTED FROM EROSION AND SEDIMENT INFILTRATION AT ALL TIMES. (FOUR DAYS)

COMMENCE FINAL GRADING AND TRIMMING OPERATIONS. PREPARE SUBGRADE FOR INSTALLATION OF PROPOSED PAVEMENT. (TWO DAYS)

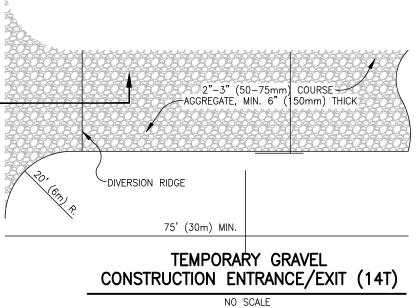
SEED AND MULCH ALL DISTURBED SITE AREAS AND INSTALLED SITE LANDSCAPING. (ONE DAY) REMOVE CONSTRUCTION DEBRIS AND JET VAC NEWLY INSTALLED STORM SEWER SYSTEM AS REQUIRED BY THE MUNICIPALITY. (TWO DAYS)

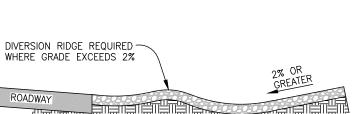
REMOVE ALL REMAINING TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ONCE PERMANENT MEASURES ARE ESTABLISHED. (ONE DAY)

WHENEVER POSSIBLE, THE SITE SHALL BE GRADED TO WITHIN SIX INCHES (6") OF THE PROPOSED FINISH GRADE PRIOR TO INSTALLATION OF UNDERGROUND FACILITIES.

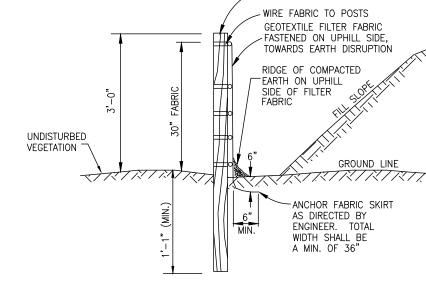
STAGING OF PROPOSED WORK SHALL BE COMPLETED BY THE CONTRACTOR AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED AREAS.

THE TEMPORARY SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY RSP CONSTRUCTION AT PHONE NUMBER (248) 747-3773.

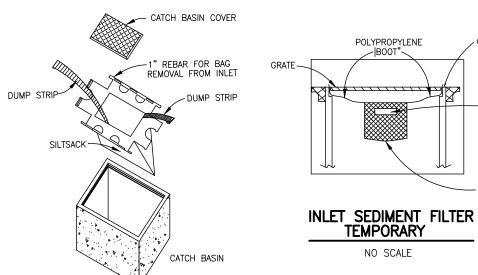


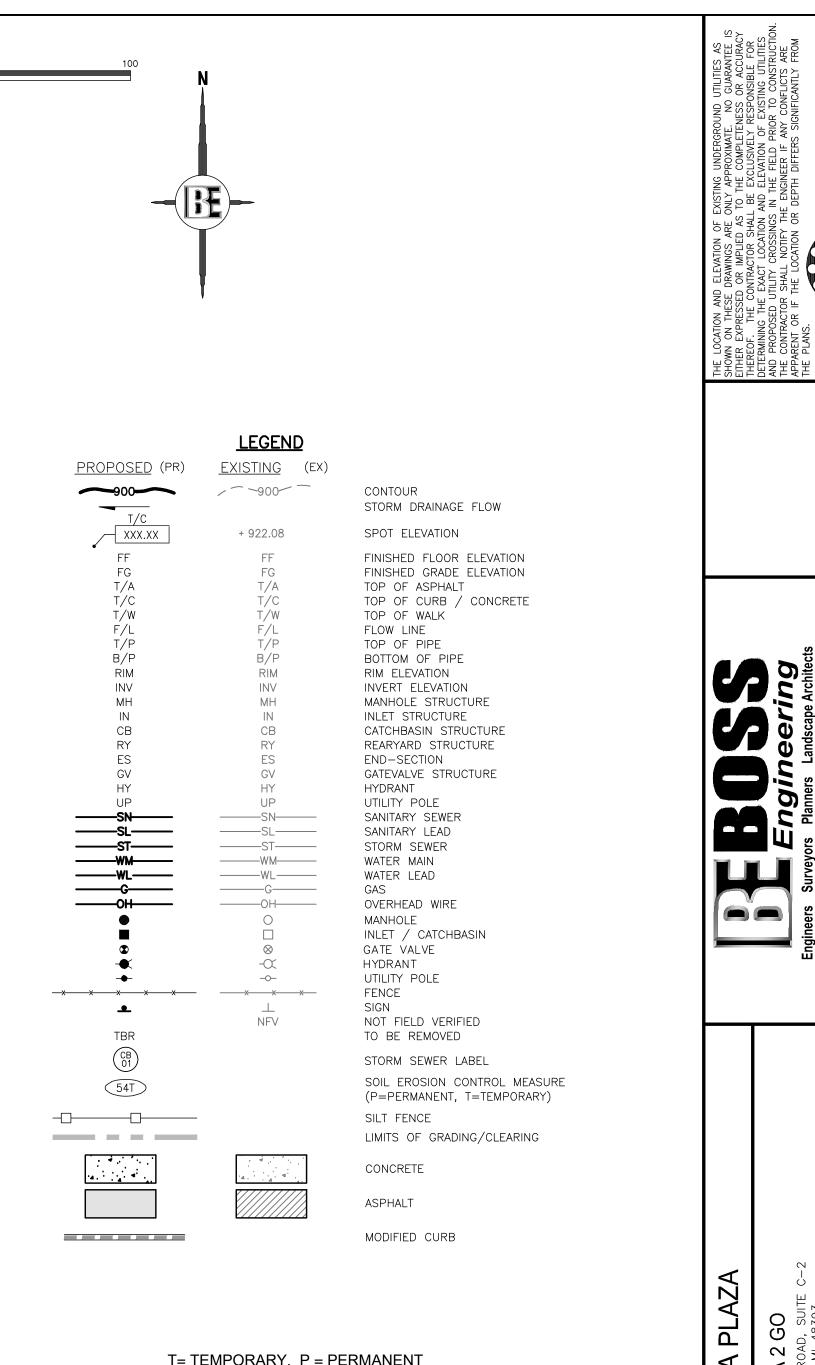


SECTION "A"-"A"



<u>SILT FENCE DETAIL</u> NO SCALE

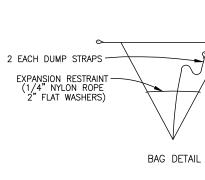


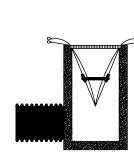


T = TEMPORARY, P = PERMANENTTOTAL AREA TO BE DISTURBED = 57,287 S.F. (1.25 AC.)

TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED Fective on large area MULCH TACKING AGENT USED TO PROVIDE IMMEDIATE PROTECTION UNTIL GRASS I HOULD INCLUDE PREPARED TOPSOIL BED STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER may be used as part of permanent base construction of paved areas ROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY RREGULAR SURFACE WILL HELP SLOW VELOCITY KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRVINAGE SYSTEM OR PREPARED SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED ARE CAN ACCEPT LARGE CONCENTRATIONS OF RUNORFF CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATI USE CATCH BASINS TO COLLECT SEDIMENT COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF MAY USE FILTER CLOTH OVER INLET COLLECTS SEDIMENT WAY BE CLEANED AND EXPANDED AS NEEDED ses geotextile fabric and post or poles. Easy to construct and locate s necessary. (see detail this sheet)

POLYPROPYLENE CATCH BASIN OVERFLOW POLYPROPYLENE
 FILTER BAG



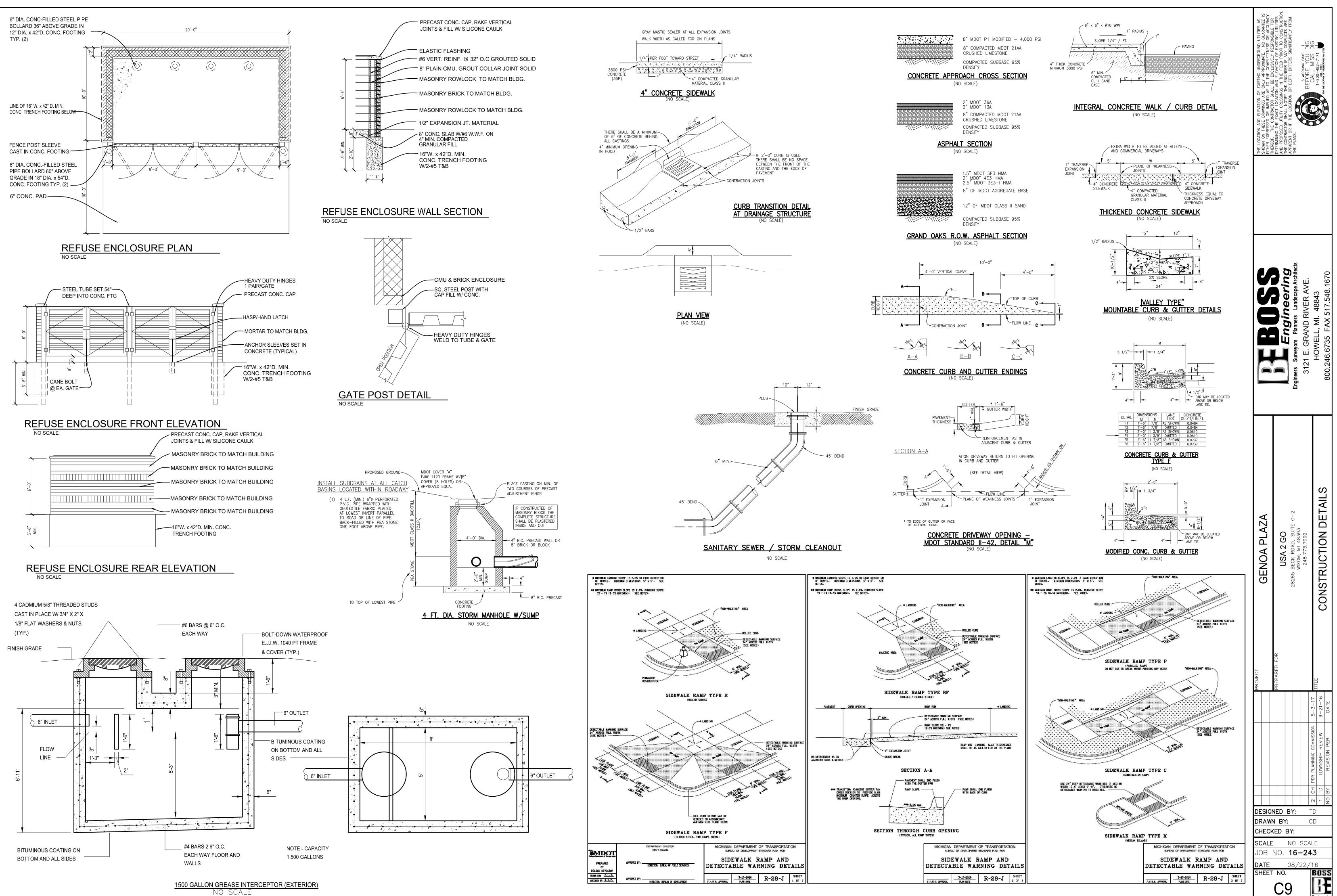


INSTALLATION DETAIL TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVEMENT CATCH BASINS INLET FILTER TO BE SIMILAR TO "STREAMGUARD" AS MANUFACTURED BY STORMWATER SERVICES CORPORATION (2067-67-0441) OR "SILTSACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS IN (800-448-3636). CLEAN FILTER AS NEEDED.

 $\sim$ AN  $\overline{C}$  $\mathbf{\alpha}$ NO () $\triangleleft$ NO NO ш ဟ ר) Ο Ñ Ш C) REVIEW 8 8 DESIGNED BY: TD CD DRAWN BY: CHECKED BY: **SCALE** 1'' = 30'JOB NO. 16-243 DATE 08/22/16 BOSS SHEET NO.

JO

-



#### LIVINGSTON COUNTY SOIL EROSION PERMIT TEMPLATE TEMPORARY CONTROLS AND SEQUENCE

NOTIFY LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE 24 HOURS PRIOR TO 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.

PERMITTING STANDARDS

36" M.D.O.T SPECIFICATION TYPE SILT FABRIC FENCE AS SHOWN ON PLANS SHALL BE PLACED AND MAINTAINED ALONG PERIMETER ON ALL LOW LYING AREAS OF THE CONSTRUCTION SITE TO FILTER RUNOFF BEFORE LEAVING PROJECT SITE.

ALL TEMPORARY EROSION CONTROL DEVICES AS NOTED ON PLANS SHALL BE INSTALLED PRIOR TO THE START OF MASSIVE EARTH DISTRIBUTION.

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 100' LINEAL FEET. SLOPES

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. STORM DRAINS

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.

STORM WATER INLETS SHALL HAVE AS A TEMPORARY CONTROL A STRAW BALE BARRIER AND 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. IN DEPTH CAN BE USED. DUE TO THE POROSITY OF THE BURLAP FILTER THE MINIMUM OF 1 FT. OF STONE IS VERY IMPORTANT. THE CONTROL SHALL BE INSTALLED AS SOON AS THE STRUCTURE IS BUILT AND INSPECTED DAILY. BURLAP AND PEA STONE FILTERS WILL NEED TO BE CHANGED AFTER EACH RAINFALL.

10. 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. 11. ALL STORM DRAINAGE PIPE 30" IN DIAMETER OR LARGER SHALL BE POINTED, AT THE JOINTS ON THE INSIDE WITH MORTAR, AFTER BACKFILLING.

12. 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

13. ALL UNIMPROVED DISTURBED AREAS SHALL BE RE-TOP SOILED, 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 EFFECTIVENESS OF THIS PROCEDURE.

14. IN THE NON-GROWING SEASON, TEMPORARY STABILIZATION OF MASSIVELY EXPOSED AREAS FOR WINTER STABILIZATION SHALL BE DONE WITH STRAW MATTING.

15. PERMIT FEES DURING THE WINTER PERIOD OF NON-CONSTRUCTION, (DECEMBER 1 THROUGH MARCH 31), SHALL NOT BE IMPOSED IF THE PERMIT HOLDER TEMPORARILY STABILIZES THE EXPOSED AREAS WITH STRAW MATTING, AND OTHER APPROVED CONTROLS, AND OBTAINS A WINTER

STABILIZATION CERTIFICATE FROM THIS OFFICE. 16. 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.

17. 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.

18. THE ISSUING BUILDING DEPARTMENT SHALL NOT ISSUE THE CERTIFICATE OF OCCUPANCY UNTIL THE FINAL INSPECTION LETTER FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE HAS BEEN OBTAINED.

19. PER THE LIVINGSTON COUNTY DRAIN COMMISSIONER THE SEEDING, FERTILIZER AND MULCH MINIMUM QUANTITIES SHALL BE AS FOLLOWS: TOP-SOII 3" IN DEPTH

101 - 301L	
GRASS SEED	210 LBS. PER ACRE
	150 LBS. PER ACRE
STRAW MULCH	3" IN DEPTH 1.5 TO 2 TONS PER ACRE (ALL
	MULCHING MUST HAVE A TIE DOWN, SUCH AS TACKIFIER,
	NET BINDING, ETC.)
HYDRO-SEEDING	HYDRO-SEEDING IS NOT ACCEPTABLE FOR SLOPES
	EXCEEDING 1%, IN SUCH CASES STABILIZATION SHALL
	BE DONE WITH SEED AND STRAW MULCH WITH A
	TACKIFIER.

SANITARY SEWERS

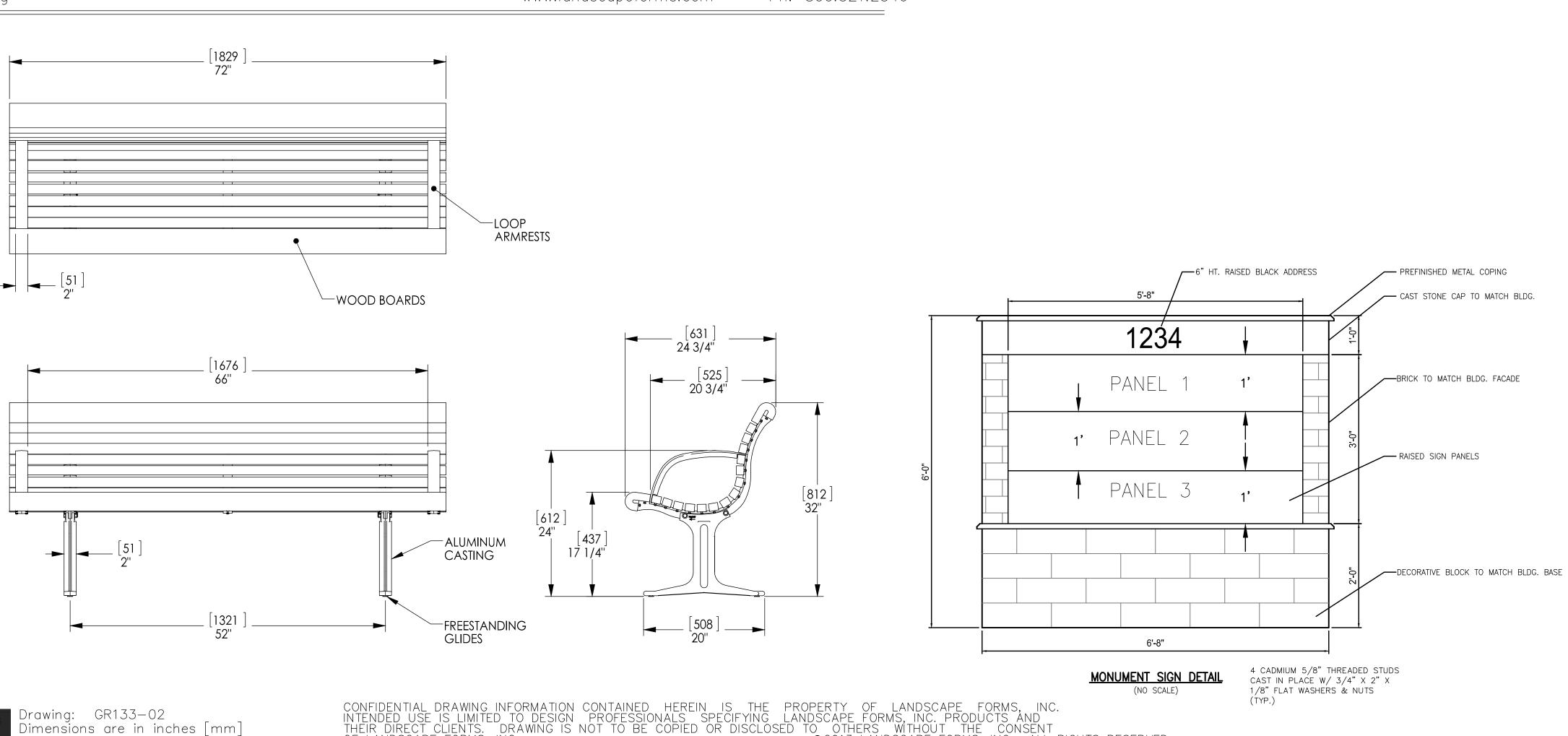
SANITARY SEWER TAP TO THE LIVINGSTON SANITARY 20. COUNTY DRAIN, SHALL ONLY BE MADE AFTER SECURING IN WRITING CLEARANCE FROM GENOA TOWNSHIP AND A SEWER TAP PERMIT FROM THE LIVINGSTON COUNTY DEPARTMENT OF BUILDING & SAFETY.

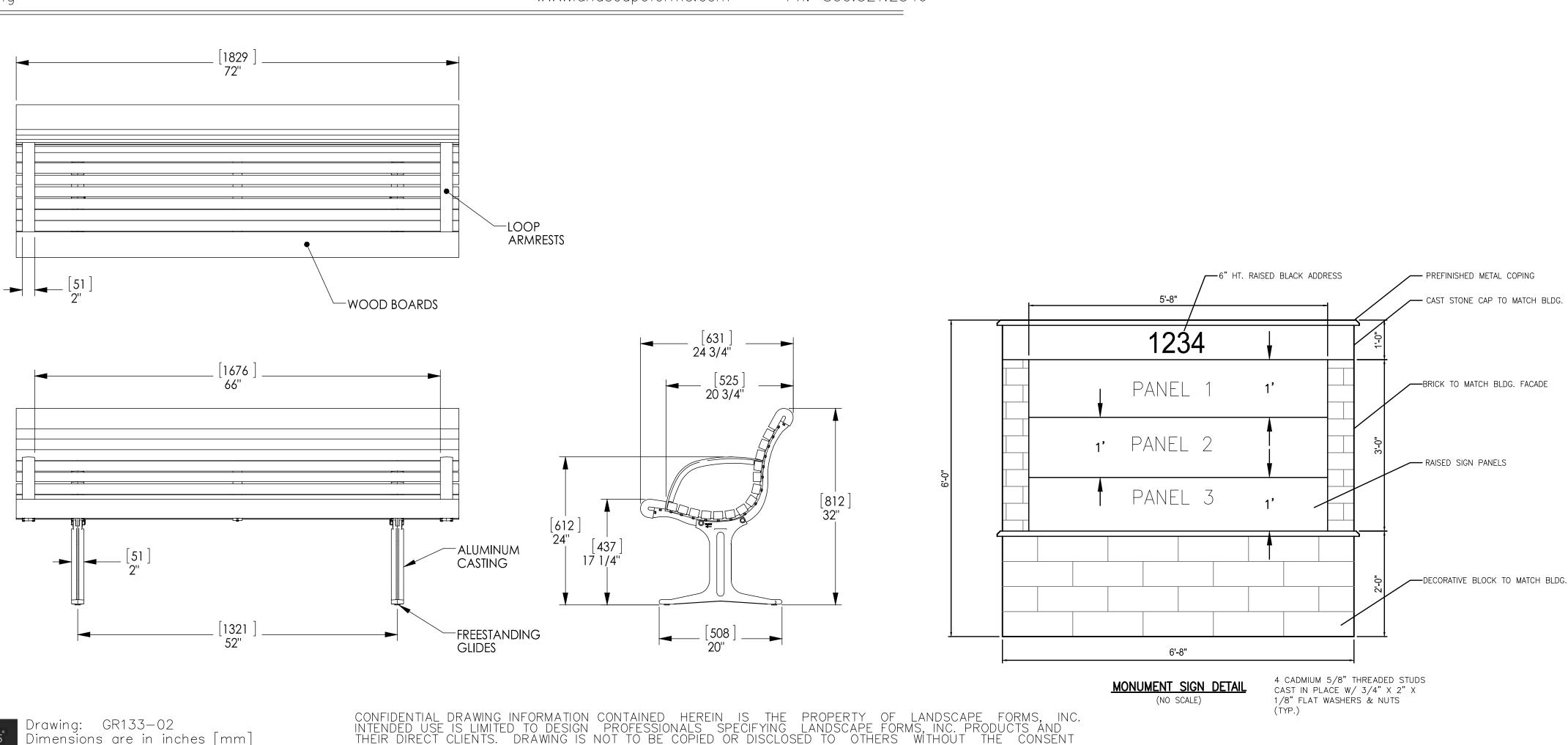
21. A TAP PERMIT WILL BE NEEDED BY THE OWNER/DEVELOPER OF THIS PROJECT TO TAP TO THE LEGALLY ESTABLISHED COUNTY STORM DRAIN. THE OWNER/DEVELOPER SHALL MAKE A WRITTEN REQUEST TO THE DRAIN COMMISSIONER TO REQUEST THE TAP TO THE STORM SEWER. THE FEES FOR SUCH TAP ARE AS FOLLOWS:

NON REFUNDABLE ADMINISTRATIVE FEE OF \$50.00, TO BE PAID AT THE TIME OF APPLICATION.

INSPECTION FEES ARE BASED ON TIME AND MATERIAL BASIS FROM PORT TO PORT FOR THE ON-SITE INSPECTOR. INSPECTORS RATE, VEHICLE MILEAGE, AND 0.5 HOURS OF REPORT PREPARATION TIME WILL BE CHARGED, AS WELL AS ANY NECESSARY MATERIALS. TIME AND MATERIAL FEES ARE PAID AT THE COMPLETION OF THE TAP INSTALLATION.

## Product Drawing



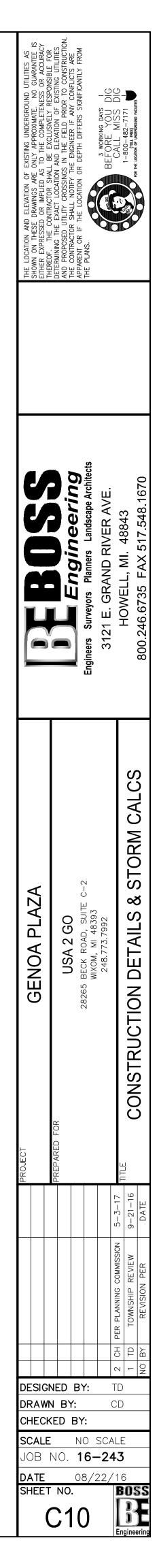


landscapeforms

Date: 6/29/2011 Ph: 800.521.2546 www.landscapetorms.com

Gretchen TM Backed Bench 72in, Freestanding / Surface Mount, Wood, with Loop Armrest

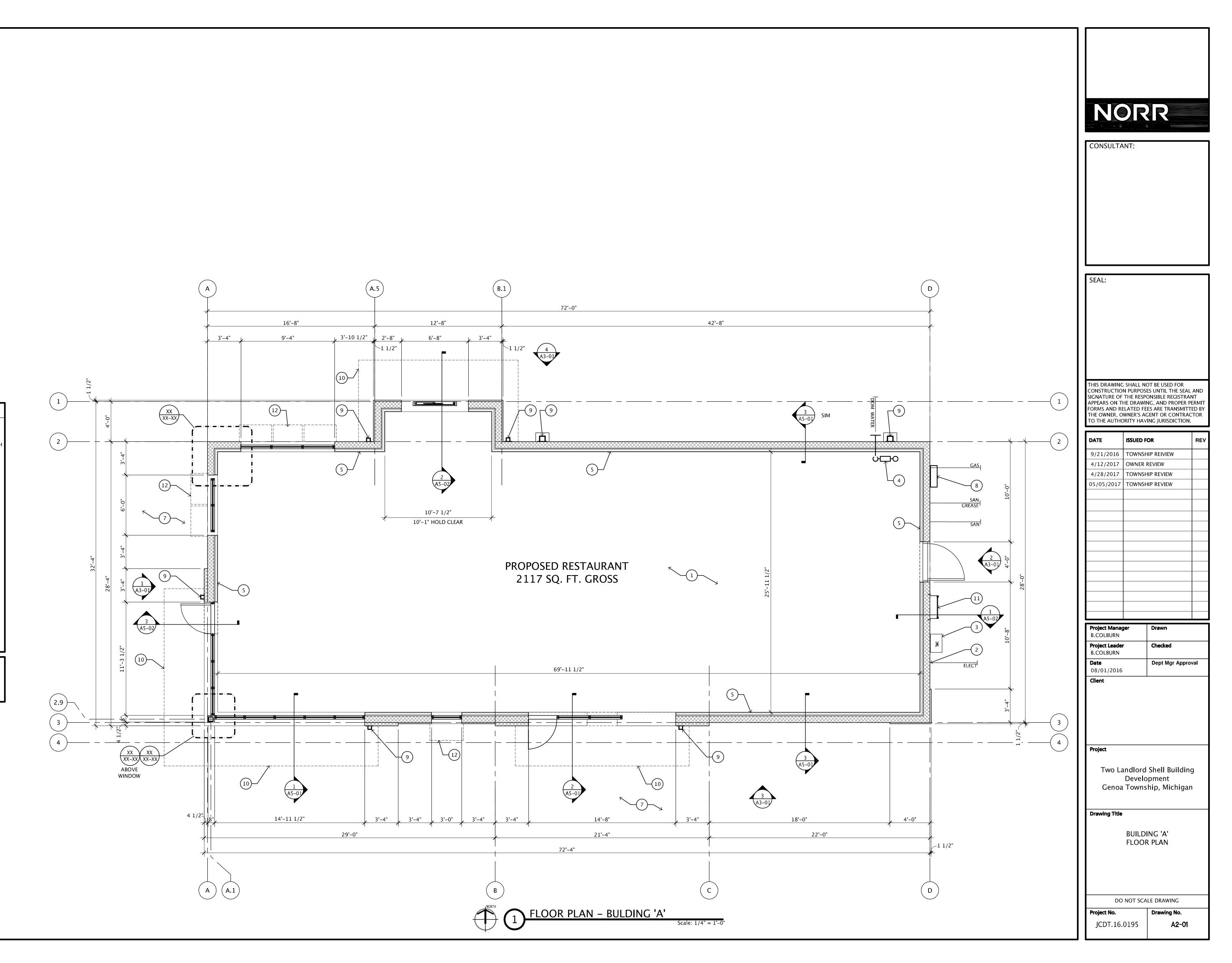
©2013 LANDSCAPE FORMS, INC. ALL RIGHTS RESERVED. OF LANDSCAPE FORMS, INC.

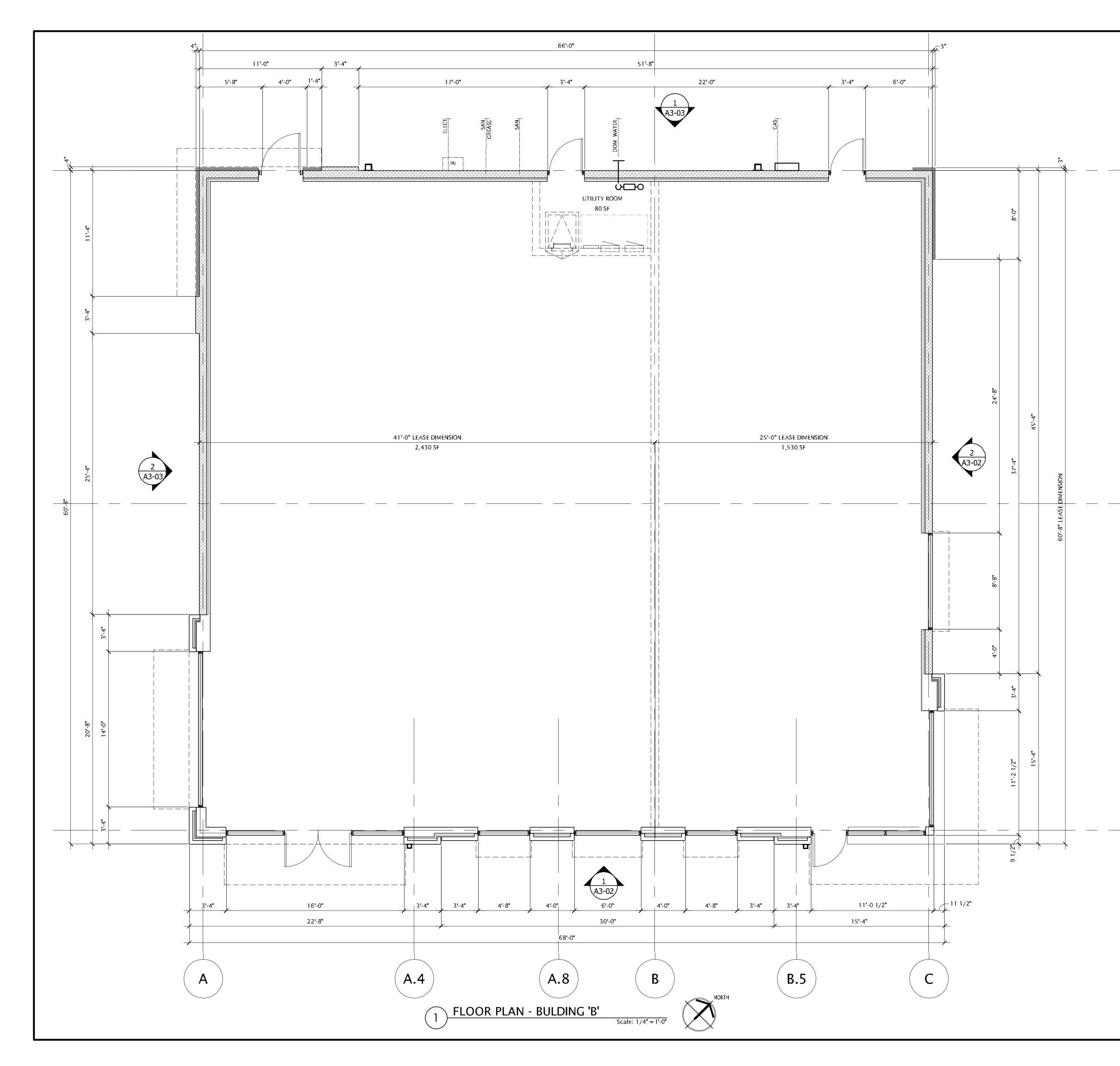


## Floor Plan Key Notes

- 1 CONCRETE FLOOR SLAB (REF FOUNDATION PLAN)
- 2 TENANT ELECTRICAL SERVICE METERS / SWITCH GEAR (REF ELECT SHEET E1-01)
- (TELEPHONE SERVICE CAB (REF ELECT SHEET E1-01)
- 4 TENANT DOMESTIC WATER MAIN AND METER (REF SHEET M1-01)
- 5 INTERIOR GYP BOARD SHEATHING TO U/S OF STRUCTURE
- 6 LINE OF FUTURE TENANT PARTITION (BY OTHERS)
- CONCRETE WALK SLOPE AWAY FROM BUILDING AT 1/4" PER LF (MAX) AND 1/8" PER
- LF (MIN) REF CIVIL (8) GAS METER BANK (REF SHEET M1-01)
- 9 CONNECT DOWNSPOUT TO STORM -COORDINATE STORM WITH CIVIL PLANS (REF
- SHEET M1-01)
- (10) EXTERIOR METAL CHANNEL CANOPY (REF EXTERIOR ELEVATIONS AND SHT A5-11)
- (11) ROOF ACCESS LADDER (REF EXTERIOR ELEVATIONS AND 1/A5-03)
- (12) PRE-FINISHED BAHAMA SHUTTER (REF EXTERIOR ELEVATIONS AND SHT A5-11)

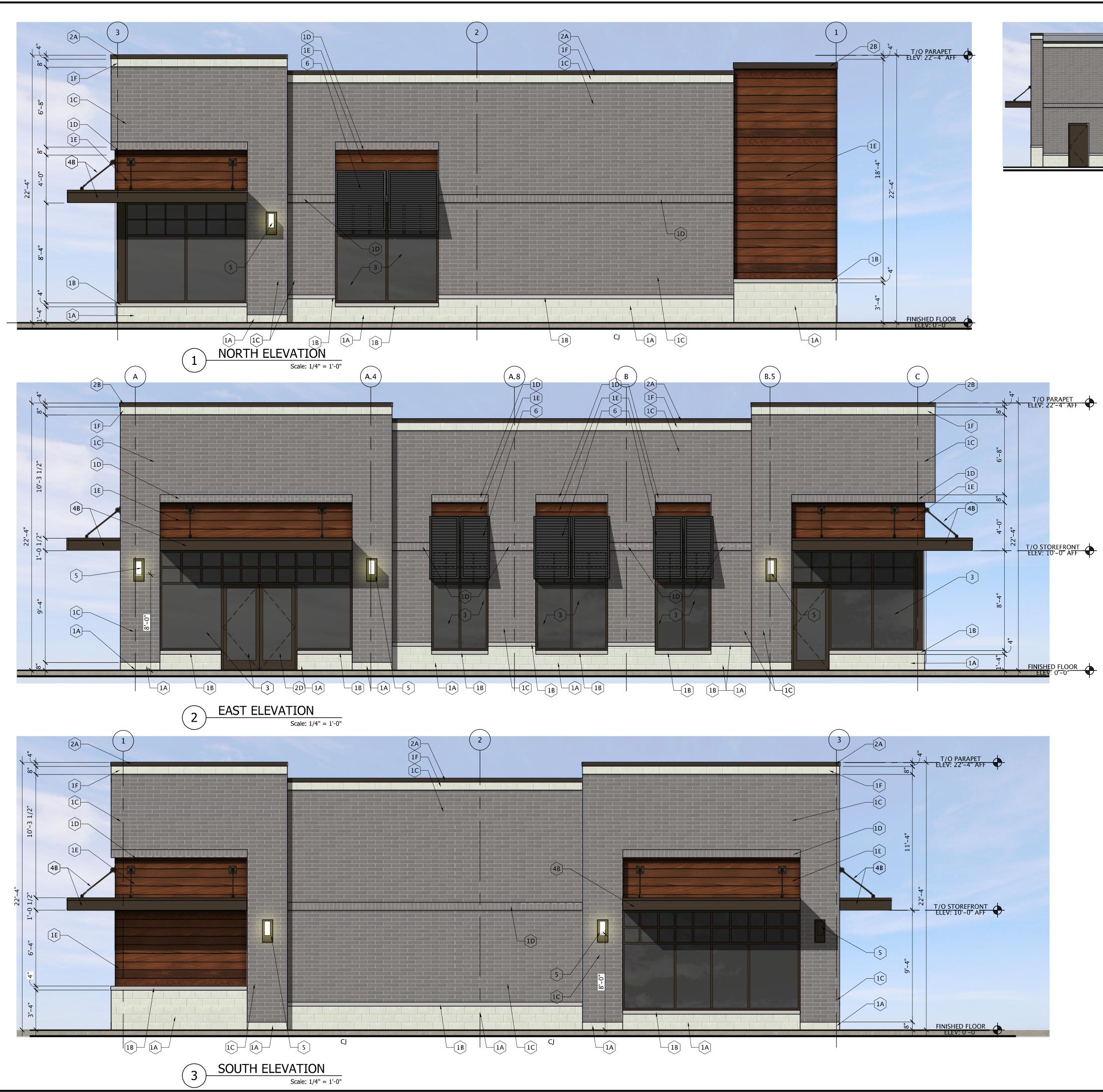
OCCUPANT LOAD & EGRESS REQUIREMENTS THIS SUBMITTAL IS INTENDED FOR BUILDING SHELL ONLY. AS PLANS FOR INDIVIDUAL TENANT SPACES ARE DEVELOPED, ADDITIONAL DOORS SHALL BE LOCATED AS NECESSARY TO CONFORM WITH THE EXIT REQUIREMENTS OF CHAPTER 10.

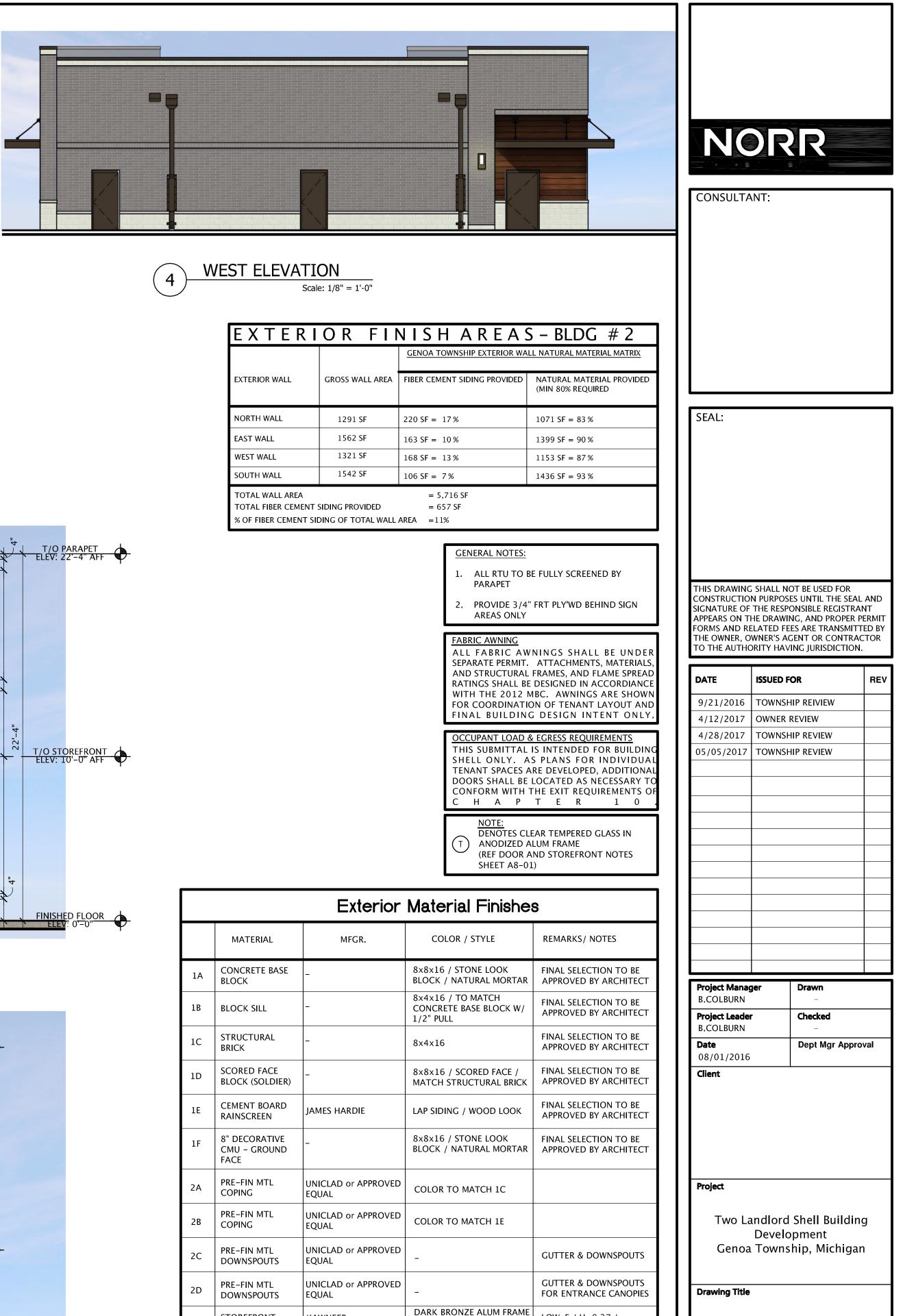




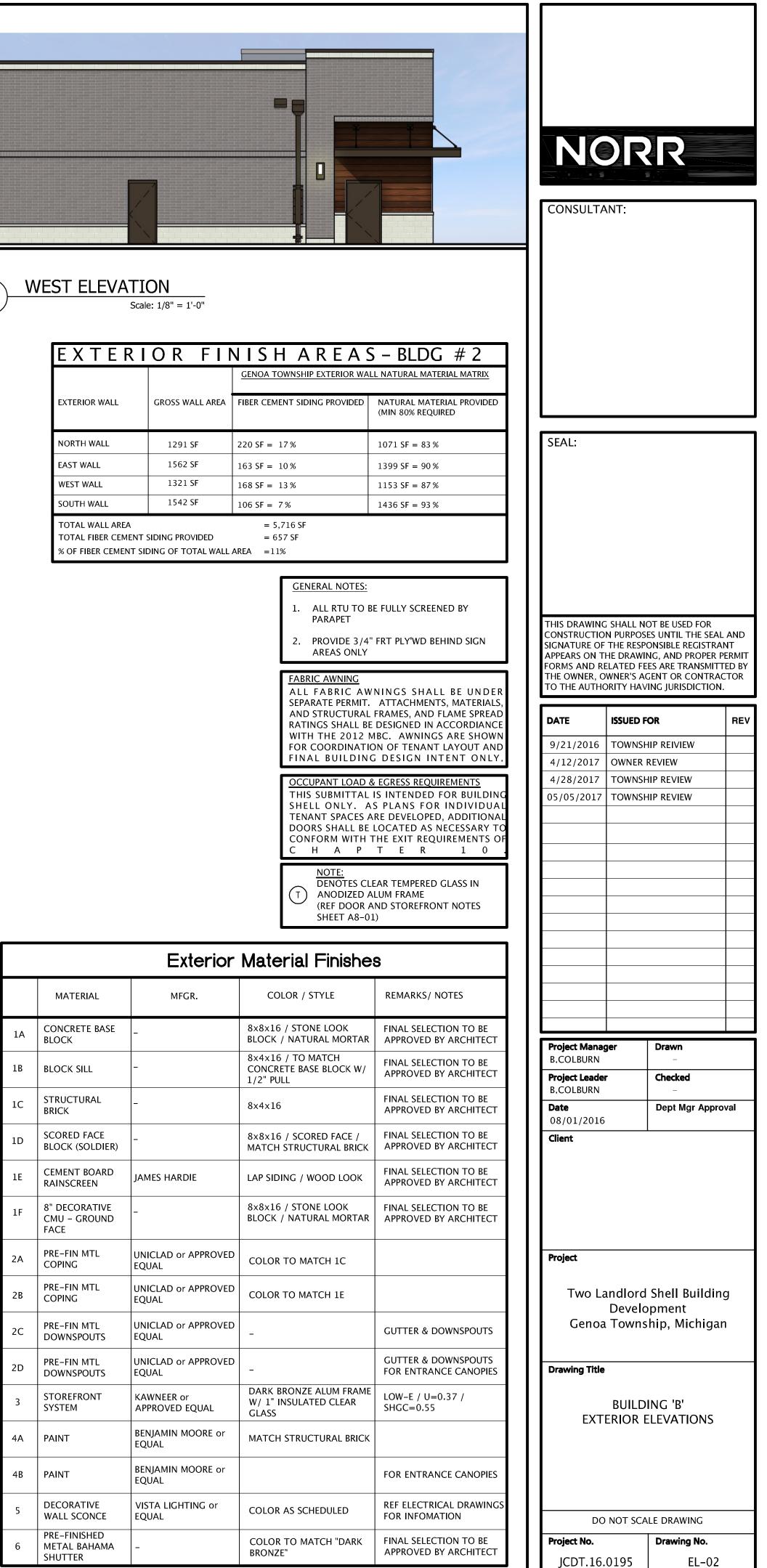
	CONSULTANT: SEAL:	
- <u>2</u>	SIGNATURE OF THE REAPPEARS ON THE DRAFORMS AND RELATED THE OWNER, OWNER'S TO THE AUTHORITY HEAUTHORITY	OSES UNTIL THE SEAL AND SPONSIBLE REGISTRANT WING, AND PROPER PERMIT FEES ARE TRANSMITTED BY GAGENT OR CONTRACTOR AVING JURISDICTION.
	Deve Genoa Tow Drawing Title BUIL FLO	Drawn Checked Dept Mgr Approval Data the











JCDT.16.0195 EL-02



### GENOA CHARTER TOWNSHIP

Application for Site Plan Review FEB - 2 2017

RECEIVED

#### TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Howell Hospitality, Inc., 26100 American Drive Ste 605 Southfield, MI 48034 If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Howell Hospitality, Inc., . 26100 American Drive Ste 605 Southfield, MI 48034

SITE ADDRESS: Vacant Parcel

PARCEL #(s): 47-11-08-200-020

APPLICANT PHONE: 248 281-4168 OWNER PHONE: Same

OWNER EMAIL: akramnamouhosp@aol.com

LOCATION AND BRIEF DESCRIPTION OF SITE: Property is located on the south side of

Grand Oaks Drive along the shared access drive within the Livingston Commons

Phase 2 development.

BRIEF STATEMENT OF PROPOSED USE: Proposed Hampton Inn & Suites 4-story hotel with associated parking.

THE FOLLOWING BUILDINGS ARE PROPOSED: Proposed Hampton Inn & Suites 4-story hotel

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. **7** 

AICRACK uman

Akram Namou-President

ADDRESS: 26100 American Drive Suite #605 Southfield, MI 48034

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Andy Andre Name

of Bud Design & Engineering Business Affiliation

at andy@buddesign.com

E-mail Address

	FEE EXCEEDANCE AGREEMENT					
	As stated on the site plan review fee schedule, all site p one (1) Planning Commission meeting. If additional re will be required to pay the actual incurred costs for the fee payment will be required concurrent with submittal applicant indicates agreement and full understanding of SIGNATURE:	additional reviews. to the Township Bo f this policy.	re necessary, the applicant			
	PRINT NAME: Akram Namou		8-281-4168			
-	ADDRESS. 26100 American Drive Suite #605 So	uthfield, MI 480	)34			

ŧ.

٢

#### GENOA CHARTER TOWNSHIP PLANNING COMMISSION PUBLIC HEARING MARCH 13, 2017 6:30 P.M. MINUTES

<u>CALL TO ORDER</u>: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, James Mortensen, Chris Grajek, John McManus, Eric Rach and Jill Rickard. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Tech, Brian Borden of LSL Planning and an audience of 1.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

#### **ELECTION OF OFFICERS:**

Ms. VanMarter stated that the Planning Commission must elect a Chairperson, Vice-Chairperson, and Secretary.

**Moved** by Commissioner Mortensen, seconded by Commission Grajek to elect Doug Brown as Chairman, Eric Rauch as Vice-Chairman, and Barbara Figurski as Secretary. **The motion carried unanimously**.

<u>APPROVAL OF AGENDA:</u> **Moved** by Commissioner McManus, seconded by Commissioner Mortensen, to approve the agenda as presented. **The motion carried unanimously.** 

CALL TO THE PUBLIC: The call to the public was made at 6:33 pm with no response.

**OPEN PUBLIC HEARING #1...**Review of Site Plan Application and Impact Assessment for a proposed 101 room, 4 story "Hampton Inn and Suites" hotel located southwest of the Grand Oaks Drive and Latson Road intersection. The property is located within the Livingston Commons Phase 2 PUD on Parcel #11-08-200-020. The request is petitioned by Howell Hospitality, Inc.

Planning Commission Recommendation of Petition

- A. Recommendation of Impact Assessment (2-21-17)
- B. Recommendation of Site Plan (2-21-17)

Andy Andre of Bud Design & Engineering and Chris Abbo, a representative for the owner and applicant, were present.

Mr. Andre gave a review of the proposed project. It is a four-story, 101-room hotel situated in the center of the PUD property. It is proposed to be a Hampton Inn and Suites. He showed colored renderings and material samples.

There would be a shared drive throughout the PUD property off of Grand Oaks Drive. They are proposing a secondary means of ingress and egress further down Grand Oaks, directly across from the driveway of the existing preschool. They will be connecting to the existing water and sewer.

In order to meet the requirements outlined in the planner's review letter, they will be replacing the CMU with more stone and brick.

Mr. Borden reviewed his letter of March 7, 2017. He reiterated the concerns regarding the amount of CMU and advised that the Planning Commission can approve what is proposed on the plans. After a brief discussion, it was agreed to replace the current CMU with brick on the columns on all sides.

The applicant must provide details of the proposed storage building. Mr. Andre agreed to provide this information.

Mr. Borden is concerned with the future vehicular circulation patterns due to the odd lot shapes and the remaining vacant land on the site. He would like the applicant to evaluate alternative circulation patterns. Commissioner Mortensen agrees. He feels a conceptual plan of the interior roadway should be presented before this is sent to the Township Board. He also feels that the developer of the PUD should be involved in the planning of the roadway. Commissioner Rauch agrees. Chairman Brown agrees and would like it to show the boundary lines of the outlots. Mr. Andre stated he will need to work with the owner of the property.

The proposed lighting underneath the entrance canopy exceeds the maximum on-site lighting intensity; however, it does not spill out onto the property or onto adjacent ones. Mr. Andre stated they will meet the ordinance requirements.

Portions of the southerly buffer zone is deficient in width and does not include the wall or berm; however, due to the width of the greenspace a wall or berm will not be possible. The Township can waive or modify these requirements.

Mr. Markstrom reviewed his letter of March 7, 2017. He reiterated the concerns of Mr. Borden regarding the interior roadway. He is also concerned with the design of the shared driveway off of Grand Oaks and how it relates to access to the remaining outlots. Mr. Andre stated that the access road and the roadway around their building were designed based on the Fire Department's requirements for adequate turning radii for emergency vehicles. He does agree there are changes that may be able to be made.

Chairman Brown stated that the Brighton Area Fire Authority's latest review letter advised the applicant has met all of their requirements.

Chairman Brown noted some changes that need to be made to the Environmental Impact Assessment.

Commissioner Grajek agrees with Commissioner Mortensen that the developer of the PUD should be involved in the discussion regarding the design of the vehicular circulation on the site. Commissioner McManus agrees also.

It was suggested that this item be tabled until the next Planning Commission meeting or a special meeting can be held.

The call to the public was made at 7:48 pm with no response.

**Moved** by Mortensen, seconded by Grajek, to table Agenda Item #1, a request by Howell Hospitality, Inc., as requested by the petitioner. **The motion carried unanimously**.

#### Administrative Business:

• Staff Report

Ms. VanMarter stated there will be three items on the April Planning Commission meeting agenda.

Staff is continuing to work with LSL Planning on the zoning code update.

• Approval of the November 14, 2016 Planning Commission meeting minutes

**Moved** by Commissioner McManus, seconded by Commissioner Rauch, to approve the minutes of the November 14, 2016 Planning Commission Meeting as presented. **The motion carried unanimously.** 

• Annual Report – 2016

Ms. VanMarter stated this report is required by State law to be presented to the Township Board. She has provided it to the Planning Commission for their information.

• Member Discussion

Chairman Brown welcomed Jill Rickard to the Planning Commission.

• Adjournment

**Moved** by Commissioner McManus, seconded by Commissioner Mortensen, to adjourn the meeting at 8:02 pm. **The motion carried unanimously.** 



Planning Commission Genoa Township 2911 Dorr Road Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP
	Planning Director and Assistant Township Manager
Subject:	Hampton Inn & Suites – Site Plan Review #4
Location:	Vacant property southwest of the Grand Oaks Drive and Latson Road intersection
Zoning:	NR-PUD Non-Residential Planned Unit Development District

Dear Commissioners:

At the Township's request, we have reviewed the revised site plan (most recently dated 5/23/17) proposing a new hotel for a vacant 2.56-acre site located southwest of the Grand Oaks Drive and Latson Road intersection.

The site is immediately southwest of the recent USA-2-Go development and is part of the Livingston Commons PUD. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance, as well as the PUD Agreement for this property.

#### A. Summary

- 1. The Planning Commission has approval authority over the building elevations, including materials and colors.
- 2. The revised building elevations include less decorative CMU and more stone, as was discussed at the prior meeting.
- 3. Portions of the southerly buffer zone are deficient in width and the required wall or berm is not provided; however, Section 12.02.13 allows the Township discretion to waive or modify these requirements under certain circumstances.
- 4. A separate permit/approval will be required for the proposed signage.

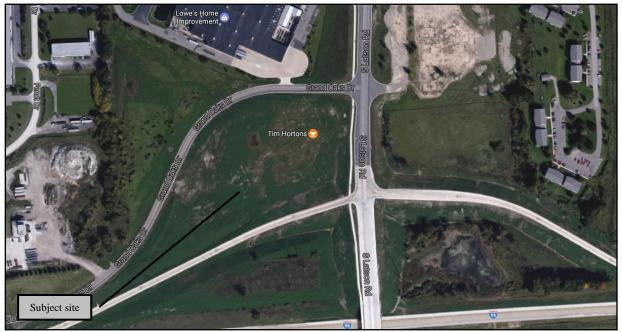
#### B. Proposal

The applicant requests site plan review and approval of a new 101-room hotel. The proposed building is 4 stories tall with a footprint of 17,934 square feet.

Hotel and convention centers are permitted uses in Phase II of the Livingston Commons PUD. As such, site plan review is the only process needed.

Since this is a final PUD plan, procedurally the Planning Commission is to make a recommendation to the Township Board on both the Environmental Impact Assessment and Site Plan Review.

Genoa Township Planning Commission Hampton Inn & Suites Site Plan Review #4 Page 2



Aerial view of site and surroundings (looking north)

#### C. Site Plan Review

**1. Dimensional Requirements.** As shown in the table below, the proposal complies with the dimensional requirements for Phase II of the Livingston Commons PUD (Zone 2):

	Lot	Size	Ν	Minimum	Setbacks	(feet)		
District	Lot Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking	Max. Height	Lot Coverage
NR-PUD (Zone 2)	1	120	20	10	20	20 front 10 side/rear	75' 5 stories	35% building 85% impervious
Proposal	2.56	182	46 (N)	76.9 (E) 64.5 (W)	59.4 (S)	20 front 10 side/rear	57'-2" 4 stories	16.1% building 65.7% impervious

**2.** Building Materials and Design. The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. Building elevation drawings are found on Sheet A5.00.

The PUD Agreement for this site requires that all wall surfaces contain at least 80% natural materials. The Zoning Ordinance (Table 12.01.03) provides additional regulations.

Building materials include decorative CMU, brick, EIFS and cast stone. The design includes a variety of projections, vertical columns, horizontal bands and material changes to break up the large building expanse, as required.

Per discussion at the prior meeting, the revised drawings include a reduction in the amount of decorative CMU and a corresponding increase in the amount of stone. Brick remains the predominant material and EIFS accounts for less than 20% on each wall face.

**3. Parking.** Per Section 14.04, 107 parking spaces are required, while 114 are proposed, including the 5 required barrier free spaces. The parking spaces and drive aisles meet or exceed the dimensional standards of Section 14.06 and the plan shows the use of looped spaces, as required.

- **4. Pedestrian Circulation.** The site plan identifies a 7-foot wide concrete sidewalk around the building. The plan also includes crosswalk striping and 5-foot wide concrete sidewalks providing pedestrian connections to future developments north and east of the site.
- **5.** Vehicular Circulation. Vehicular access is proposed in two locations: one via an internal shared driveway that connects to Grand Oaks Drive and another via a cross-access easement connection directly to Grand Oaks, which is aligned with the drive on the opposite side of the road.

As shown on Sheet C3.1, the cross-access connection was added as a result of discussion at the prior meeting and will provide direct access to the subject site and vacant parcel to the south/west, as well as indirect access to the vacant parcel to the north/east (via the Hampton Inn site). Future connection to the vacant parcel to the north/east will cause the removal of 4 parking spaces; however, the proposed plan has a surplus of 7 spaces.

Given the discussion on this matter and the resulting changes to the design, we believe the current proposal is the best layout presented to date. With that being said, the Commission should consider any comments or suggested improvements provided by the Township Engineer.

- 6. Loading. While there is no designated loading zone provided, guests of the hotel will use the space under the canopy for check-in/out and drop-off/pick-up. Additionally, there is ample room around the site to accommodate short-term deliveries (USPS, FedEX, UPS, etc.).
- 7. Waste Receptacle and Enclosure. The project includes a new waste receptacle and enclosure in the southwest corner of the property (details on Sheet C6.1). The proposed placement, base design and enclosure comply with the standards of Section 12.04.
- **8.** Landscaping. We reviewed the landscape plan based on the conventional standards of Section 12.02. As described in our previous review letters, given the unique nature of the site, we applied buffer zone requirements to all 4 sides.

Location	Requirements	Proposed	Comments
Buffer zone "C"	10' width	20' width	Requirements met
(N – commercial	20 canopy trees OR	5 canopy trees	_
to commercial)	20 evergreens OR	4 evergreen trees	
	80 shrubs	44 shrubs	
	(OR combination thereof)		
Buffer zone "B"	20' width	10-40' width	Deficient by width and wall/berm.
(S – along I-96)	6' wall or 3' berm	14 canopy trees	
	14 canopy trees	14 evergreen trees	The PC has the discretion to waive
	14 evergreens	56 shrubs	or modify these requirements.
	56 shrubs		
Buffer zone "C"	10' width	14' width	Requirements met
(E – commercial	13 canopy trees OR	5 canopy trees	_
to commercial)	13 evergreens OR	32 shrubs	
	52 shrubs		
	(OR combination thereof)		
Buffer zone "C"	10' width	10' width	Requirements met
(W - commercial	13 canopy trees OR	7 canopy trees	
to commercial)	13 evergreens OR	2 evergreen trees	
	52 shrubs	16 shrubs	
	(OR combination thereof)		
Parking lot	10 canopy trees	10 canopy trees	Requirements met
	1,000 SF landscaped area	1,837 SF landscaped area	

**9.** Exterior Lighting. The submittal includes a revised lighting plan (Sheet C3.2), which proposes the installation of 6 light poles around the perimeter of the parking lot. The plan also shows the use of decorative building-mounted lighting and fixtures underneath the entrance canopy.

The proposed lighting plan, including pole heights, fixture details and light intensities, complies with current Township standards.

**10. Signs.** The building elevation drawings identify 2 wall signs – one on the north elevation and another on the south side.

While specific details are not provided, the signs appear to provide channel cut letters as opposed to panel signs, which are consistent with the PUD Agreement for this site.

As noted in our previous review letters and discussed at the prior meeting, the signs shown are "for reference only" at this time. If /when the site plan is approved, the applicant must obtain a sign permit prior to installation of any signage.

**11. Impact Assessment.** The submittal includes an updated Impact Assessment (most recently dated May 1, 2017). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at <u>borden@lslplanning.com</u>.

Respectfully, LSL PLANNING, A SAFEBUILT COMPANY

Brian V. Borden, AICP Planning Manager



June 7, 2017

Ms. Kelly Van Marter Genoa Township 2911 Dorr Road Brighton, MI 48116

#### Re: Hampton Inn – Site Plan Review #4

Dear Ms. Van Marter:

Tetra Tech has reviewed the updated site plan documents from Bud Design & Engineering Services, Inc. dated May 23, 2017. The applicant is proposing to build an 18,000 sft hotel with access from Grand Oaks Drive. The hotel is located just north of the I-96 westbound access ramp in the southwest quadrant of the Latson Road and Grand Oaks Drive intersection. This area is zoned as NR-PUD and access to Grand Oaks drive is provided through a shared access easement.

#### SUMMARY

- 1. Future access for north parcel.
- 2. Provide driveway cross-connection easements.
- 3. Construction plan review.

#### SITE PLAN

- 1. The petitioner previously provided a future plan that incorporates development of the three parcels surrounding the current parcel under review. The future access to the north parcel on the east drive will need to be moved further south per the sketch provided in the previous review. This comment will remain as documentation of the request for any future site plan reviews concerning the north parcel.
- 2. The future plan, as attached to this letter, has potential for parallel and redundant drives. To allow for future traffic flow, cross-connection easements must be added to the southwest and southeast corners and along the north parcel line of the proposed parcel currently under review.
- 3. A construction plan review will be required for the proposed site per the MHOG Connection Manual. The preliminary comments below will require correction prior to construction plan approval.
  - a. The public utility easement width requirement, per the MHOG Utility Department, is a minimum of 20' for both water mains and sanitary sewer. The proposed 12-foot-wide easement needs to be increased to meet these standards and the easement documents need to be executed prior to permitting.
  - b. There exists two additional water service leads from the 12-inch water main on the north side of Grand Oaks Drive. These leads must be shown on the plans and incorporated into the system to provide a loop back to Grand Oaks and fire service to the proposed building.

Ms. Kelly Van Marter Re: Hampton Inn Site Plan Review #4 June 7, 2017 Page 2

The petitioner should revise and resubmit the site plan to address the above comments prior to approval.

Sincerely,

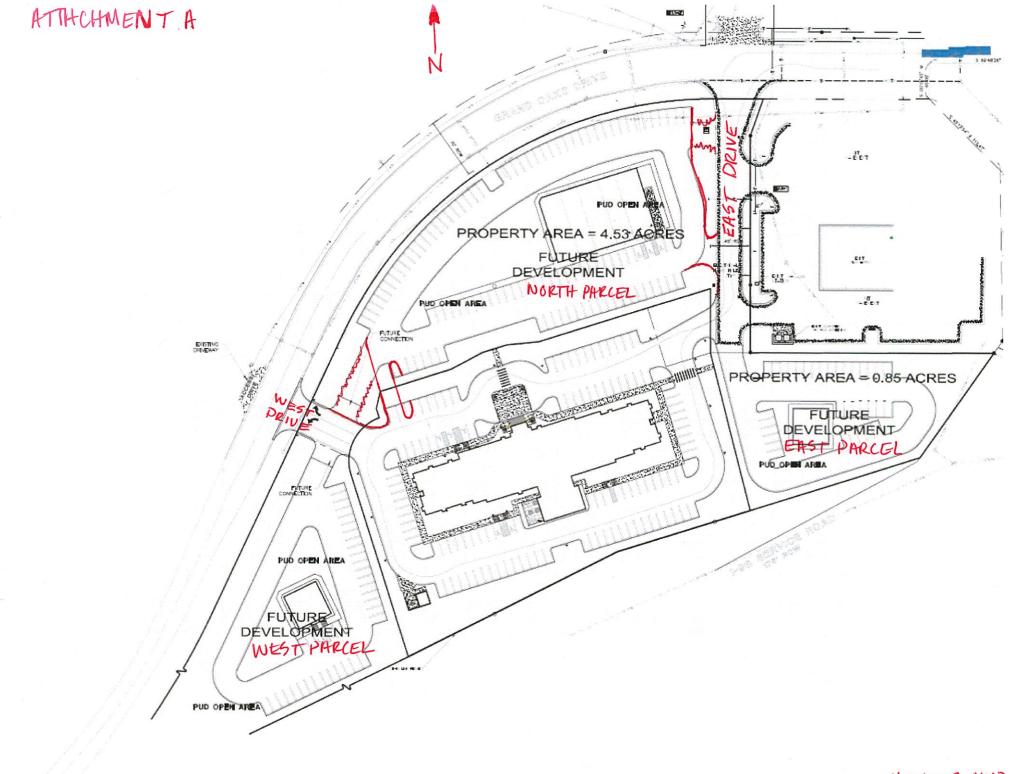
Gary J. Markstrom, P.E. Unit Vice President

Attachment

anot Marguerite K. Davenport

Project Engineer

Copy: Andrew Andre, P.E., Bud Design & Engineering Services, Inc.



### 5/18/2017 MKE

**BRIGHTON AREA FIRE AUTHORITY** 



615 W. Grand River Ave. Brighton, MI 48116 o: 810-229-6640 f: 810-229-1619

May 31, 2017

Kelly VanMarter Genoa Township 2911 Dorr Road Brighton, MI 48116

RE: Hampton Inn & Suites Grand Oaks Dr. Genoa Twp., MI

Dear Kelly,

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on May 24, 2017 and the drawings are dated Feb. 1, 2017 with latest revisions dated May 23, 2017. The project is based on the proposed construction of a new 4-story Hotel. The actual square footage is not shown on provided drawings but is estimated at 72,000 square feet.

This plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

## All comments and associated corrections made on previous submittals have been made regarding fire protection and emergency vehicle access.

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department.

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Capt. Rick Boisvert, CFPS Fire Inspector



10775 S. Saginaw St. Suite B | Grand Blanc, MI 48439 | Ph: 810.695.0793 | Fax: 810.695.0569 | www.buddesign.com

#### **ENVIRONMENTAL IMPACT ASSESSMENT**

HAMPTON INN & SUITES GRAND OAKS DRIVE

#### A. Name and address of person responsible for preparation:

Andrew Andre, P.E. Bud Design & Engineering Services, Inc. 10775 S. Saginaw St., Suite B Grand Blanc, MI 48439 Mr. Andre is a professional engineer the State of Michigan and has 20-years of experience with site development projects. Several projects have been located within Genoa Township.

#### B. Map and written description/analysis of the project site:

The proposed project is a vacant parcel located south of Grand Oaks Drive and west of Latson Road. The property is bordered to the south by the new access entry to I-96 from Latson Road. Northeast of the subject property is the USA2GO/Tim Horton's development. The project is located within the development commonly known as "Livingston Commons Phase 2".

The property is 2.56-acres in size and within the NR-PUD zoning district. The proposed project is a 4-story Hampton Inn & Suites project, which a hotel is a permitted use within the NR-PUD district.





10775 S. Saginaw St. Suite B | Grand Blanc, MI 48439 | Ph: 810.695.0793 | Fax: 810.695.0569 | www.buddesign.com

#### C. Impact on natural features:

The existing site is presently vacant and is predominately covered with low-lying vegetation. No trees were located during the field survey. The existing topography is generally sloping from west to east. The subject area has been mass graded as part of the Grand Oaks Drive re-alignment and "Livingston Commons Phase 2" development. There are several areas of poor drainage that will be rectified as part of the project where positive drainage will be provided.

An existing Access Drive is provided to service the development from Grand Oaks Drive. A commercial driveway connection is proposed to connect to the existing Access Drive. In addition, a full-access commercial driveway on the western portion of the hotel property is proposed to connect to Grand Oaks Drive. This driveway also includes drive and curb locations for adjacent future developments to the north and west of the hotel. The accomplishment of a secondary means of ingress and egress to emergency vehicles as well as providing cross-access between adjacent developments is achieved with this driveway. The drive is located across from the existing Gilden Woods driveway.

Based on review of the USDA-NRCS Web Soil Survey for Livingston County, the predominant soil group over the project site is MoB (Miami-Loam) 2 to 6 percent slopes group. Included within this soil type are small wet areas of somewhat poorly drained Conover soils and poorly drained Brookston soils, and, in some of the depressions, very poorly drained Linwood soils. Also, included on small higher knolls, are small areas of coarser textured Owosso soils and Spinks-Oakville loamy sands. Small areas that have a dark yellowish-brown surface layer are included. Surface runoff is slow, permeability is moderate, and the erosion hazard is slight.

The contractor shall practice dust control measures at all times during earth change activities in accordance with the standards for soil erosion and sedimentation control of the Livingston County Drain Commissioner. Typical measures include spraying the site with water to prevent dust migration.

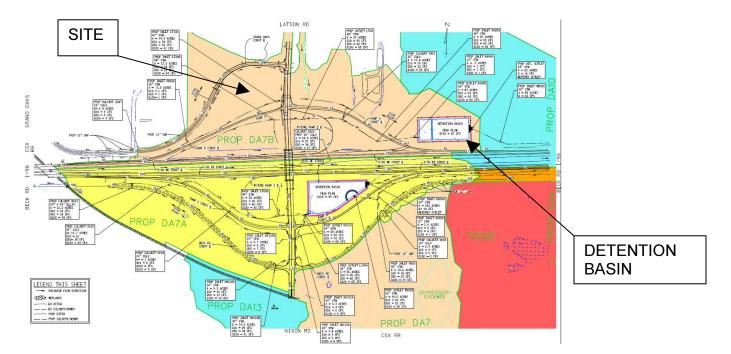
Based on the existing conditions and proposed development, little impact on natural features is anticipated.

#### D. Impact on stormwater management:

The property is part of the drainage district that was incorporated within the "I-96 Interchange at Latson Road...Revised Final Drainage Study May 2011" that was completed as part of the MDOT project with I-96 and Latson Road. The entire site is tributary to a detention basin that was constructed as part of the MDOT interchange project. The property is part of the "PROP DA7B" sub-drainage area (refer to map below) within the overall tributary area. The detention basin was sized for the 100-year storm event to provide the necessary storage and restricted release. As a result of the property being part of the existing detention basin, no on-site detention is proposed as part of the hotel development. Connection to the existing storm sewer network that leads to the detention basin in proposed. No impact on the stormwater management system is anticipated based on the prior design and construction activities.



10775 S. Saginaw St. Suite B | Grand Blanc, MI 48439 | Ph: 810.695.0793 | Fax: 810.695.0569 | www.buddesign.com



#### E. Impact on surrounding land use:

The proposed project is part of the greater NR-PUD zoning within the immediate area and would be consistent with the surrounding commercial and retail developments. Landscaping within the parking lot and along the perimeter of the developed area will provide for an aesthetically pleasing visual appearance for the area. Landscaping along the southern portion of the property will provide buffering and screening with the I-96 entrance ramp. Increased screening and landscaping is provided with the project because the existing site is vacant and covered with low-quality low-lying vegetation.

As part of the project design, LED site lighting will be utilized in order to reduce off-site light trespass. In addition, photometric motion sensors will be installed on the exterior lighting that will reduce light levels within the parking lot when motion is not detected over a 15-minute time period. When motion is detected, the lighting will increase to normal levels and will then reduce again once no motion is detected. This lighting feature decreases unnecessary light levels for periods of time when the parking lot is not in use.

#### F. Impact on public facilities and services:

The surrounding area is a well-developed location with Genoa Township. Public services such as fire and police currently service the surrounding area and the development will be consistent with the similar developments. Access to the property is provided for both fire and police with full-circulation provided around the proposed building. Fire lanes of at least 26-feet have been



10775 S. Saginaw St. Suite B | Grand Blanc, MI 48439 | Ph: 810.695.0793 | Fax: 810.695.0569 | www.buddesign.com

provided. The proposed building will be fully suppressed with a fire protection system and fire hydrants have been proposed that would be used as necessary.

#### G. Impact on public utilities:

Utilities for the Livingston Commons Phase 2 were originally designed by Fishbeck, Thompson, Carr & Huber, Inc., as noted in the Record Drawings, last dated 11/20/13. Adequate capacity was incorporated within the design and connectivity to public utilities are in the general vicinity of the project.

Water main was installed along Grand Oaks Drive and also extended along the Access Drive. It is proposed to extend the water main from an existing location along the eastern side of the Access Drive. The water main will be extended within a dedicated water main easement to the proposed hotel property. A loop around the hotel is proposed for redundancy within the network and to provide adequate fire hydrant coverage. There are four (4) locations provided for the future connection and extension of the water main in order to service adjacent developments.

Sanitary sewer main is located along the south side of Grand Oaks Drive installed as part of the roadway re-alignment. The connection of a service lead from the hotel development via gravity flow is proposed as part of the project.

The franchise companies, such as gas, electric and telephone, have been contacted to coordinate service and extensions necessary for the proposed development.

#### H. Storage and handling of any hazardous materials:

No hazardous materials, as classified by National Fire Protection Association (NFPA), will be handled or stored as part of this project.

#### I. Impact on traffic and pedestrians:

The project site is located within the "Livingston Commons Phase 2" development. As part of the project, the re-alignment of Grand Oaks Drive was completed. In addition, the I-96 and Latson Road interchange has been completed in the recent past. The surrounding surface transportation network is well established and with the recent construction provides for adequate capacity for both the existing properties and planned development.

There is an existing Access Drive that connects to the south side of Grand Oaks Drive. Multiple commercial developments are intended to utilize this Access Drive. A shared commercial access drive to Grand Oaks is proposed. Both the location and intent of the driveway to Grand Oaks is consistent with the conceptual PUD plans. No direct access to Latson Road is proposed.

There are no existing sidewalks along Grand Oaks Drive, Access Drive, or as part of the USA2GO/Tim Horton's property. In the event that sidewalks are incorporated along either, connection could provided from the proposed hotel development.



10775 S. Saginaw St. Suite B | Grand Blanc, MI 48439 | Ph: 810.695.0793 | Fax: 810.695.0569 | www.buddesign.com

#### Future Site Trip Generation

The number of AM and PM peak hour trips that would be generated by the proposed development was forecasted based on data published by ITE in the "Trip Generation Manual", 9<sup>th</sup> Edition. The number of trips expected to be generated by the proposed project during the weekday AM peak and PM peak was calculated. The trip generation shown represents the trip generation using ITE Land Use code, as shown in Table 1. The development is estimated to generate 48 trips in the AM Peak Hour and 54 trips in the PM peak Hour.

Table 1

Land Use	Land Use	Unit	AM Peak I		Hour	PM Peak Hour		
	Code	onit	In	Out	Total	In	Out	Tot al
Hampton Inn & Suites	310	101 Rooms	28	20	48	28	26	54



2911 Dorr Road

#### MEMORANDUM

Brighton, MI 48116 810.227.5225	то:	Andy Andre, Bud Design and Engineering
810.227.3420 fax	FROM:	Kelly VanMarter, Assistant Township Manager/Community
genoa.org		Development Director
	DATE:	March 8, 2017
	RE:	Hampton Inn and Suites Hotel

This memo will describe the connection fees required for a new 17,934 sq. ft. hotel with 101 rooms located on parcel 11-08-200-020 southwest of the Grand Oaks Drive and Latson Road intersection. The hotel also includes 580 sq. ft. swimming pool.

101 Rooms @ .38 per bedroom =	38.38 REUs
580 sq.ft. Swimming Pool @ 3 REUs per 1,000 sq.ft.=	1.74 REUs

TOTAL REU NEW HOTEL =

40.12 REUs

TOTAL DUE =	\$ 605,812.00
40.12 REU x \$7,900 per Water REU =	\$ 316,948.00
40.12 REU x \$7,200 per Sewer REU =	\$ 288,864.00

#### Connection Fees must be paid at time of land use permit issuance.

A meter package may also need to be purchased including the appropriate sized meter and a MIU (meter interface unit). Should you have any questions please feel free to contact me at 810-227-5225.

#### **SUPERVISOR**

**Bill Rogers** 

CLERK Paulette A. Skolarus

TREASURER Robin L. Hunt

TRUSTEES

Jean W. Ledford H. James Mortensen Terry Croft Diana Lowe

MANAGER Michael C. Archinal



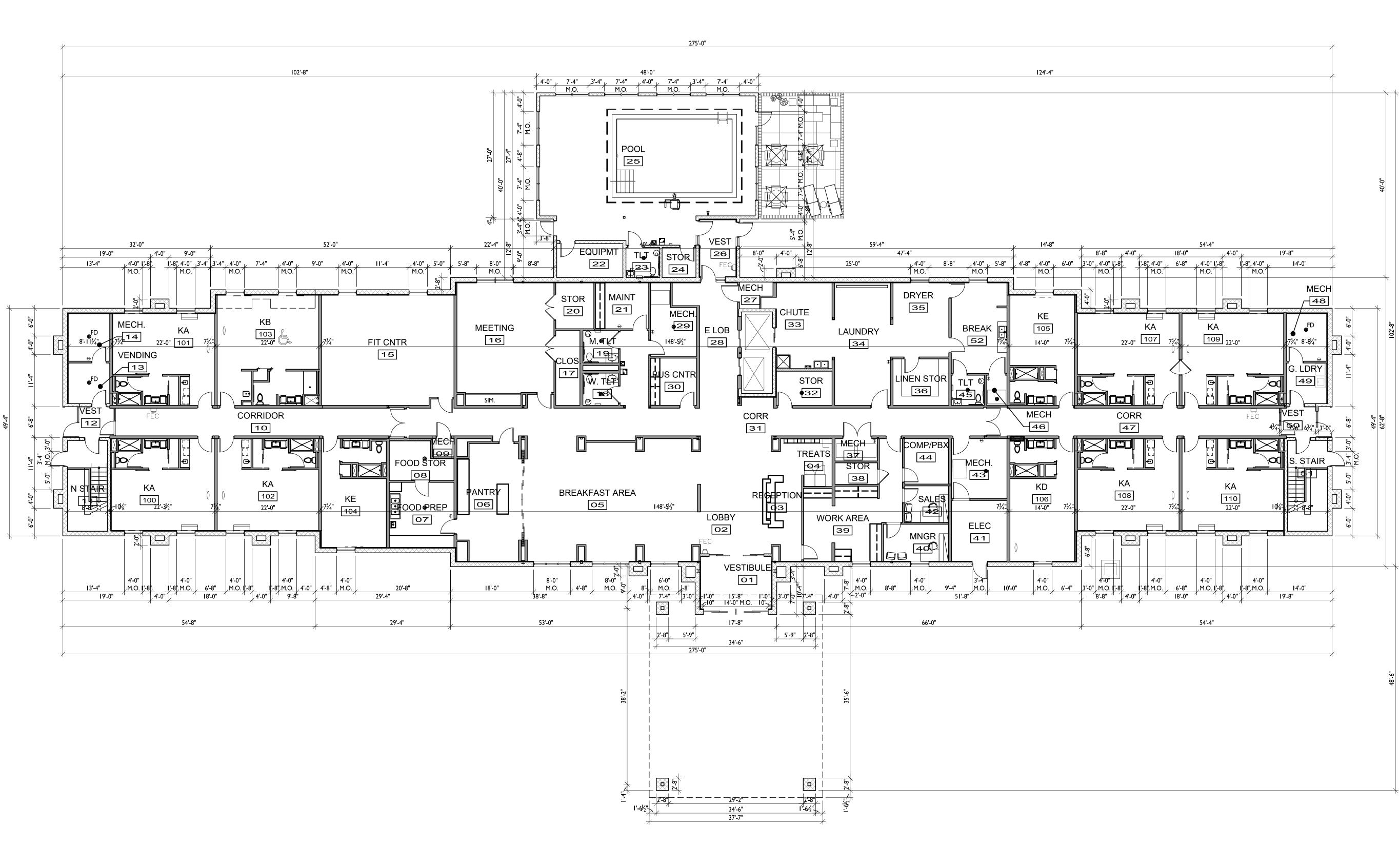
## **EXTERIOR RENDERING**



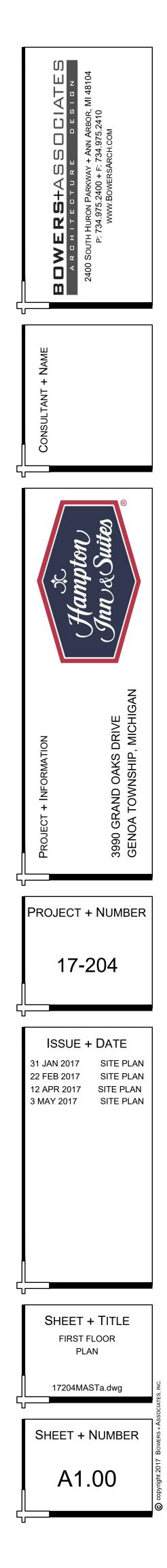


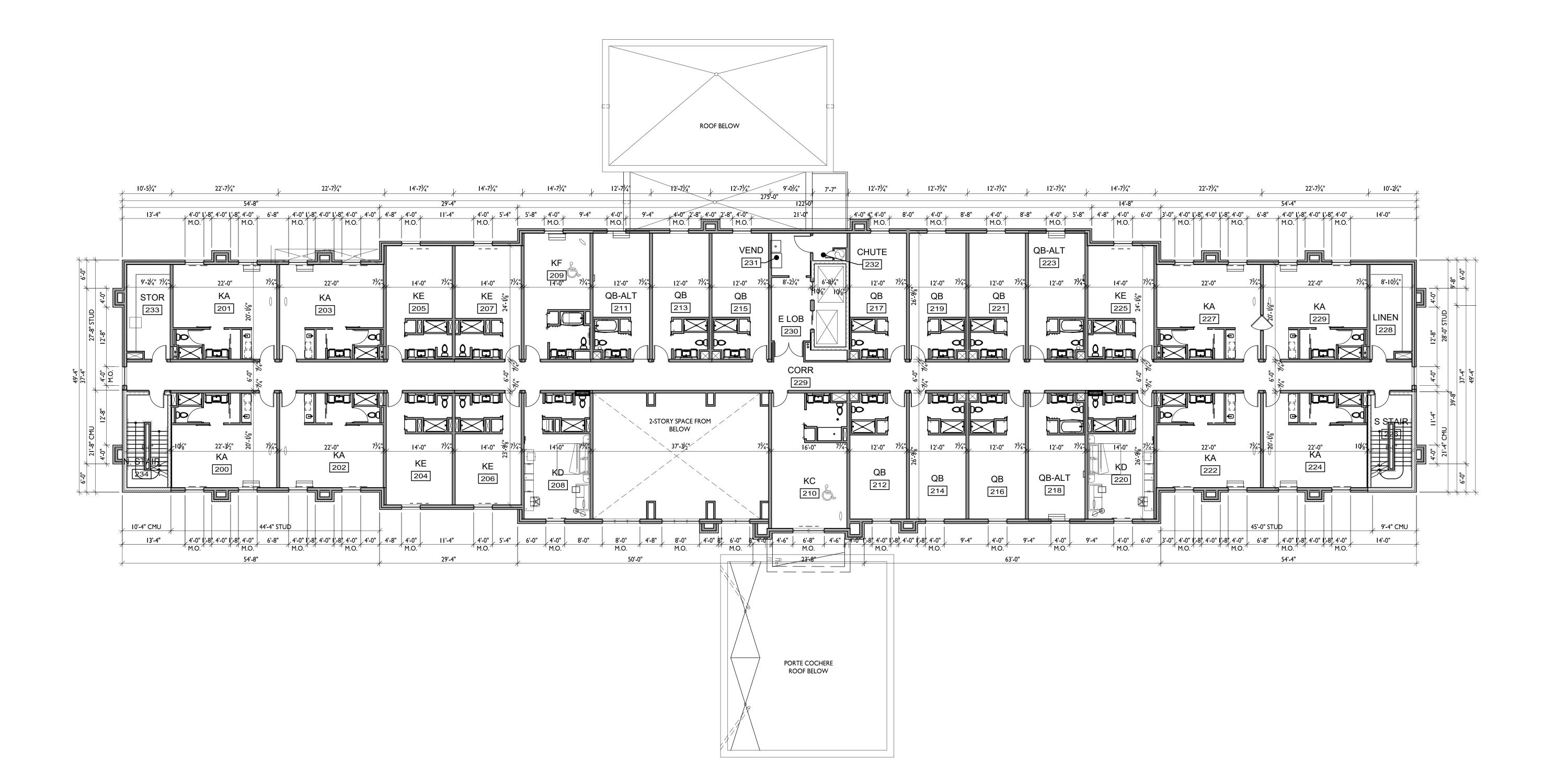
## **EXTERIOR RENDERING**

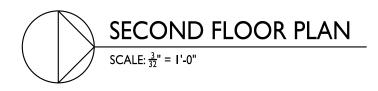


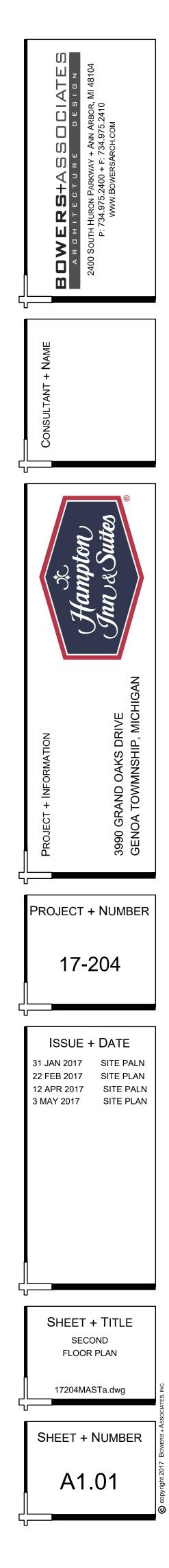


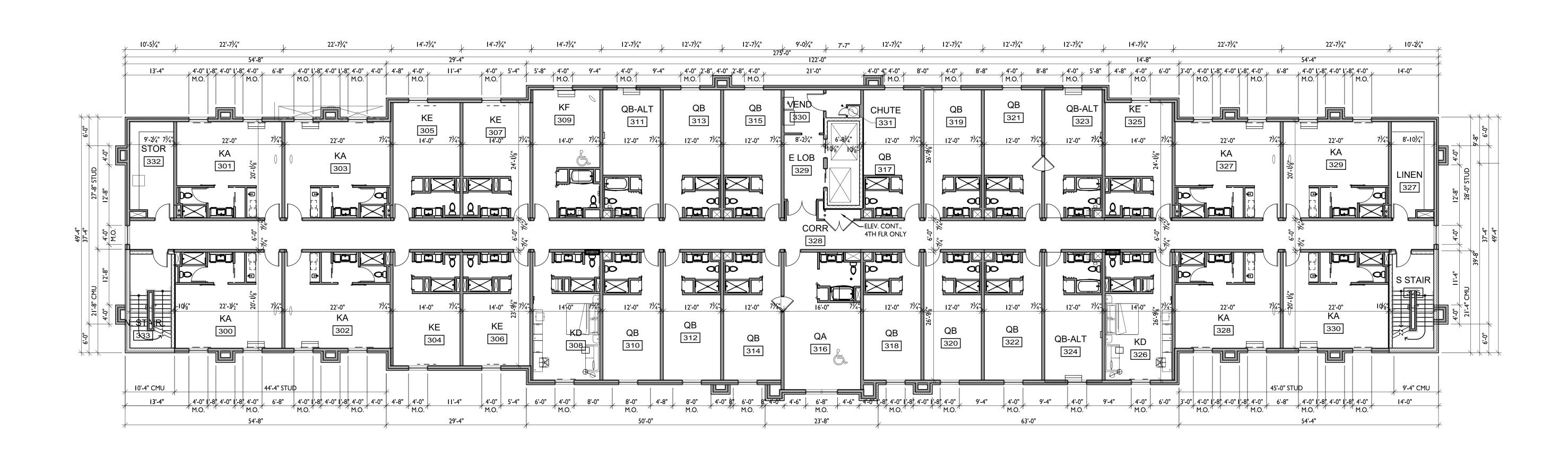




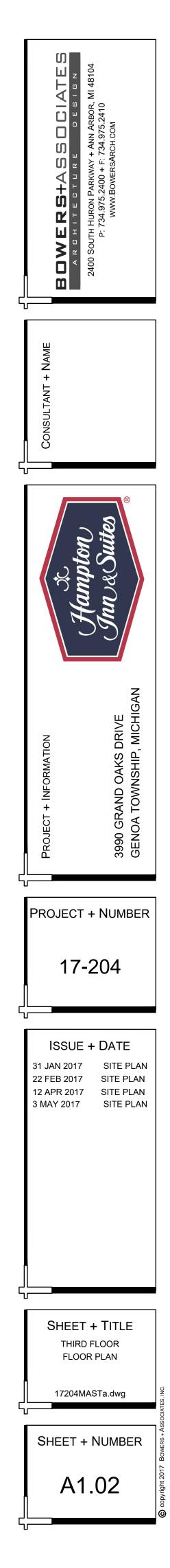


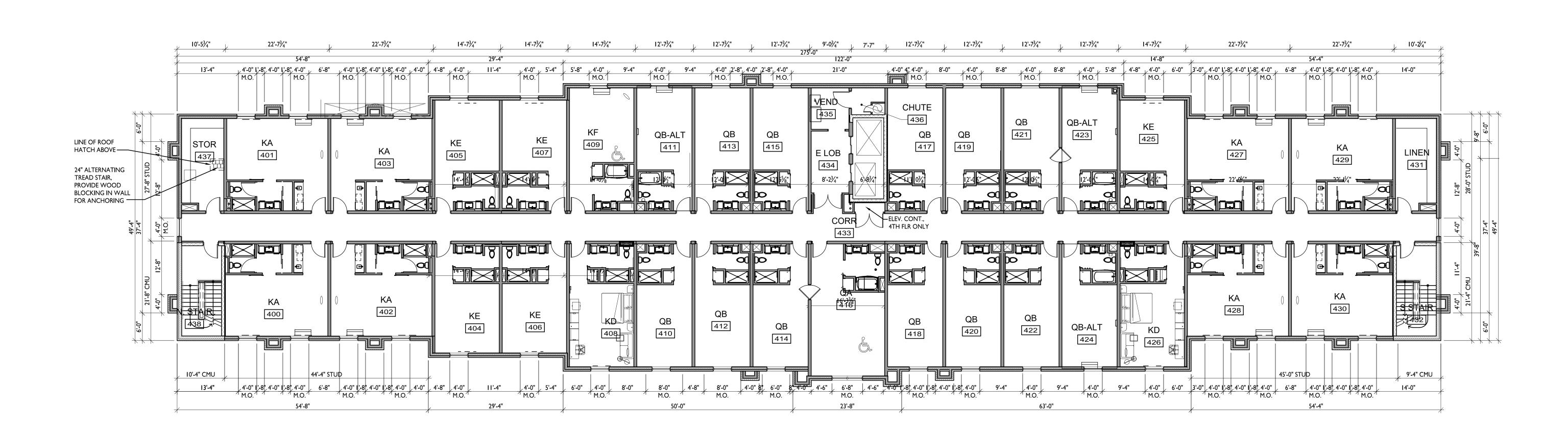


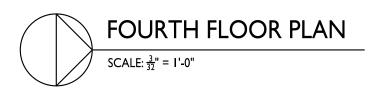


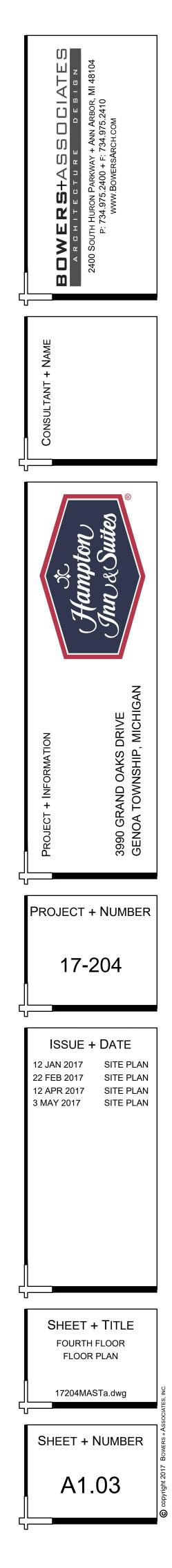


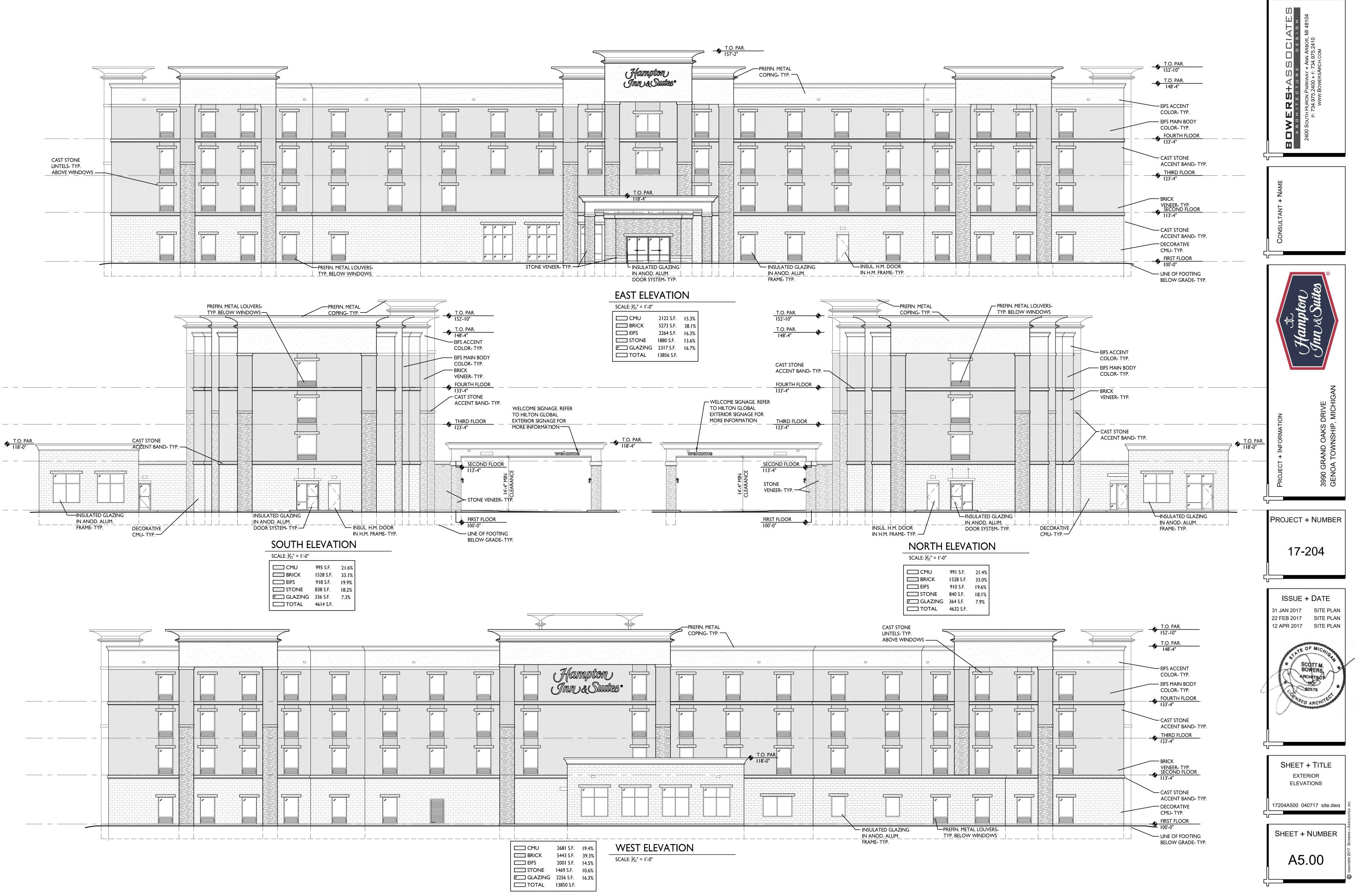












# HAMPTON INN & SUITES **GRAND OAKS DRIVE**

# GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

## APPLICANT

## HOWELL HOSPITALITY, INC. 26100 AMERICAN DRIVE #605 SOUTHFIELD, MI 48034

CONTACT: CHRIS ABBO PHONE: (248) 281-4168

STANDARD LEGEND		
DESCRIPTION	PROPOSED	EXISTING
BUILDING		Ľ
STORM SEWER	— — 12"— —	12"
SANITARY SEWER	S	S
WATER		W
GAS LINE	G	G
ELECTRIC LINE	E	E
TELEPHONE LINE	TT	Ţ
MANHOLE	•	0
CATCH BASIN	• •	0 0
ENDSECTION		$\square$
FIRE HYDRANT	¥	φ
GATE VALVE & WELL	•	8
UTILITY POLE	æ	ۍ
UTILITY RISER		
SIGN		-0-
LIGHT POLE	•-□	*
CURB & GUTTER		
FENCE	xxx	xx
SILT FENCE		
TREE - DECIDUOUS	AS NOTED ON PLANS	
TREE LINE		
SPOT ELEVATION	+100.00	×100.00
CONTOUR LINE	100	
SECTION CORNER		$\bullet$
FOUND PROPERTY IRON		0
SET PROPERTY IRON		•
GAS METER		©
ELECTRICAL METER		Ē
TELEPHONE RISER		TPED Ø
MAILBOX		ME
SOIL BORING LOCATION		<b></b>

GENERAL CONTRACTOR INFORMATION NAMOU HOTEL GROUP 26100 AMERICAN DRIVE #605 SOUTHFIELD, MI 48034 PH 248-281-4168

FX 248-281-4170 CONTACT: CHRIS ABBO cabbo@namouhotels.com

SUPERVISOR: MARK REAUME mreaume@namouhotels.com CELL 248-924-1027



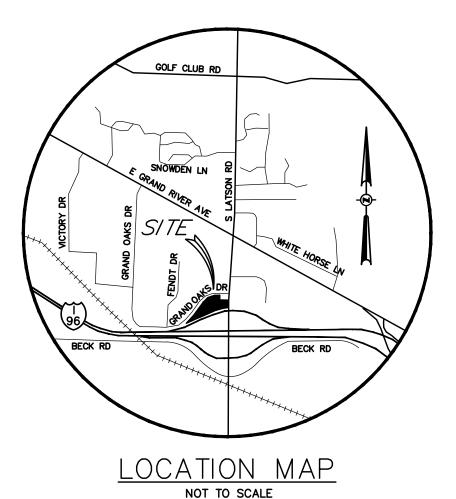
THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN ON THESE DRAWINGS ARE BASED ON RECORDS PROVIDED BY THE UTILITY OWNERS AND VISIBLE EVIDENCE OBTAINED IN THE FIELD. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED TO THE COMPLETENESS OR ACCURACY THEREOF.

## SITE PLAN APPROVAL

ARCHITECT

**BOWERS+ASSOCIATES** 2400 SOUTH HURON PARKWAY ANN ARBOR, MI. 48104

CONTACT: SCOTT BOWERS, AIA, NCARB PHONE: (734) 975-2400



## DRAWING INDEX

- COVER SHEET C1.0 C2.0 ALTA/NSPS LAND TITLE SURVEY C3.0 SITE LAYOUT AND PAVING PLAN C3.1 CONCEPTUAL AREA PLAN C3.2 PHOTOMETERIC PLAN
- C4.0 **GRADING PLAN**
- C4.1 **EROSION CONTROL PLAN**
- C5.0 UTILITY PLAN
- C5.1 STORM MANAGEMENT PLAN
- C6.0 SITE DETAILS
- C6.1 SITE DETAILS
- LANDSCAPE PLAN AND DETAILS L1.0 MHOG STANDARD DETAILS MHOG STANDARD DETAILS

## PLANS AS PROVIDED BY BOWER+ASSOCIATES

- FIRST FLOOR PLAN A1.00
- SECOND FLOOR PLAN A1.01
- A1.02 THIRD FLOOR PLAN
- FOURTH FLOOR PLAN A1.03
- EXTERIOR ELEVATIONS A5.00





Bud Design 8 ngineering Services, Inc ecture | Engineering | Interi 10775 S. Saginaw St. Suite B Grand Blanc, MI 48439 (PH) 810.695.0793 (FAX) 810.695.0569

Web: www.buddesign.co

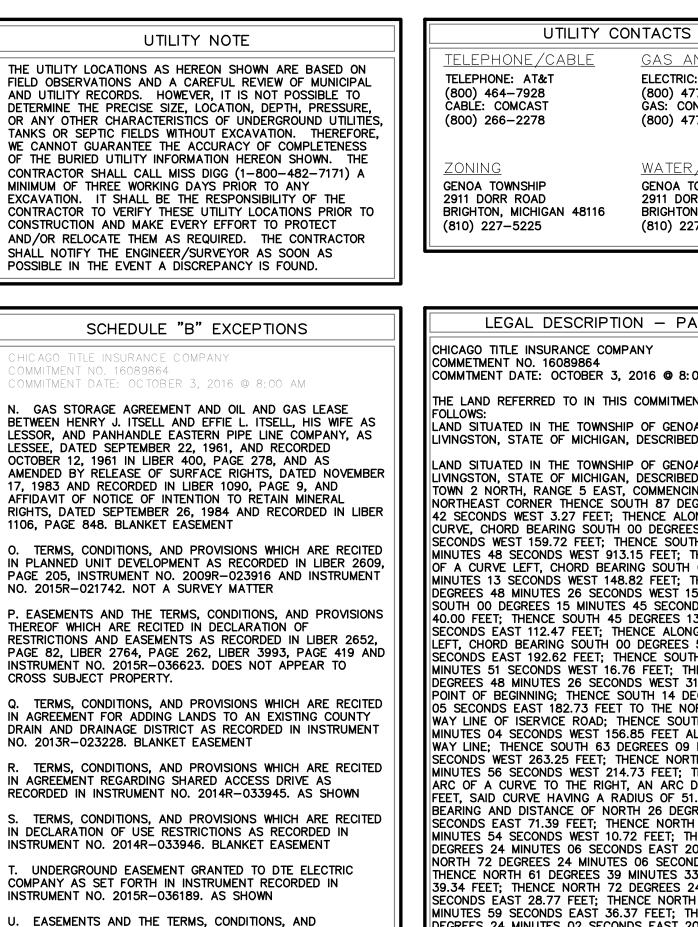
## **CIVIL ENGINEER**

## BUD DESIGN & ENGINEERING SERVICES, INC. 10755 S. SAGINAW ST., SUITE B GRAND BLANC, MI 48439

CONTACT: ANDREW ANDRE, P.E. PHONE: (810) 695-0793



ANDREW ANDRE, P.E. MICHIGAN PE 47380 BUD DESIGN & ENGINEERING SERVICES, INC



PROVISIONS THEREOF WHICH ARE RECITED IN DECLARATION OF RESTRICTIONS AND EASEMENTS AS RECORDED IN INSTRUMENT NO. 2016R-016340.

BENCHMARKS B.M. #1 ARROW ON OPERATING NUT OF HYDRANT SOUTH OF WEST ENTRANCE OF TIM HORTON CAFE EASTSIDE OF SERVICE DRIVE SOUTH OF GRAND OAKS DRIVE ELEV. 1020.73 NAVD 8 B.M. #2 ARROW ON OPERATING NUT OF HYDRANT WEST OF SOUTH ENTRANCE TO LOWE'S ON NORTH SIDE OF GRAND OAKS DRIVE

ELEV. 1016.17 NAVD 88

LEGAL DESCRIPTION - PARCEL "A" CHICAGO TITLE INSURANCE COMPANY COMMTMENT DATE: OCTOBER 3, 2016 @ 8:00 AM THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, STATE OF MICHIGAN, DESCRIBED AS: LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, STATE OF MICHIGAN, DESCRIBED AS: SECTION 8, TOWN 2 NORTH, RANGE 5 EAST, COMMENCING AT THI NORTHEAST CORNER THENCE SOUTH 87 DEGREES 16 MINUTES 42 SECONDS WEST 3.27 FEET; THENCE ALONG ARC OF A CURVE, CHORD BEARING SOUTH OD DEGREES 40 MINUTES 20 SECONDS WEST 159.72 FEET; THENCE SOUTH 01 DEGREES 07 MINUTES 48 SECONDS WEST 913.15 FEET; THENCE ALONG ARC OF A CURVE LEFT, CHORD BEARING SOUTH 00 DEGREES 42 MINUTES 13 SECONDS WEST 148.82 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 26 SECONDS WEST 159.53 FEET; THENCE SOUTH 00 DEGREES 15 MINUTES 45 SECONDS WEST 40.00 FEET; THENCE SOUTH 45 DEGREES 13 MINUTES 54 SECONDS EAST 112.47 FEET; THENCE ALONG ARC OF A CURVE LEFT, CHORD BEARING SOUTH 00 DEGREES 57 MINUTES 11 SECONDS EAST 192.62 FEET; THENCE SOUTH 35 DEGREES 12 MINUTES 51 SECONDS WEST 16.76 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 26 SECONDS WEST 319.20 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 14 DEGREES 21 MINUTES 05 SECONDS EAST 182.73 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF ISERVICE ROAD; THENCE SOUTH 72 DEGREES 24 MINUTES 04 SECONDS WEST 156.85 FEET ALONG SAID RIGHT OF WAY LINE; THENCE SOUTH 63 DEGREES 09 MINUTES 06 SECONDS WEST 263.25 FEET; THENCE NORTH 17 DEGREES 35 MINUTES 56 SECONDS WEST 214.73 FEET; THENCE ALONG THE ARC OF A CURVE TO THE RIGHT, AN ARC DISTANCE OF 78.87 FEET, SAID CURVE HAVING A RADIUS OF 51.50 FEET, CHORD BEARING AND DISTANCE OF NORTH 26 DEGREES 16 MINUTES 26 SECONDS EAST 71.39 FEET; THENCE NORTH 17 DEGREES 35 MINUTES 54 SECONDS WEST 10.72 FEET: THENCE NORTH 12 DEGREES 24 MINUTES 06 SECONDS EAST 20.00 FEET; THENCE NORTH 72 DEGREES 24 MINUTES 06 SECONDS EAST 84.00 FEET; THENCE NORTH 61 DEGREES 39 MINUTES 33 SECONDS EAST 39.34 FEET; THENCE NORTH 72 DEGREES 24 MINUTES 04 SECONDS EAST 28.77 FEET: THENCE NORTH 84 DEGREES 01 MINUTES 59 SECONDS EAST 36.37 FEET; THENCE NORTH 72 DEGREES 24 MINUTES 02 SECONDS EAST 202.29 FEET; THENCE SOUTH 00 DEGREES 11 MINUTES 34 SECONDS EAST 72.82 FEET TO THE POINT OF BEGINNING. TOGETHER WITH A PERPETUAL, NON-EXCLUSIVE EASEMENT FOR VEHICULAR AND PEDESTRIAN ACCESS, INGRESS AND EGRESS, OVER THE SHARED ACCESS DRIVE, AS DESCRIBED IN THE AGREEMENT REGARDING SHARED ACCESS DRIVE, DATED NOVEMBER 26, 2014, RECORDED DECEMBER 1, 2014 IN INSTRUMENT NO. 2014R-033945. NOTE FOR INFORMATIONAL PURPOSES ONLY: COMMONLY KNOWN AS: VACANT LAND TAX ID NUMBER: 4711-08-200-015 FLOODPLAIN INFORMATION

GAS AND ELECTRIC

(800) 477-4747 GAS: CONSUMERS ENERGY

BRIGHTON, MICHIGAN 48116

ELECTRIC: DTE ENERGY

(800) 477-5050

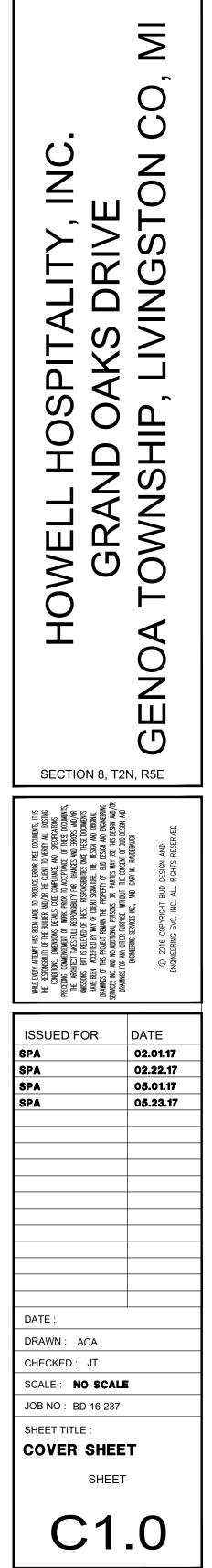
water/sewef

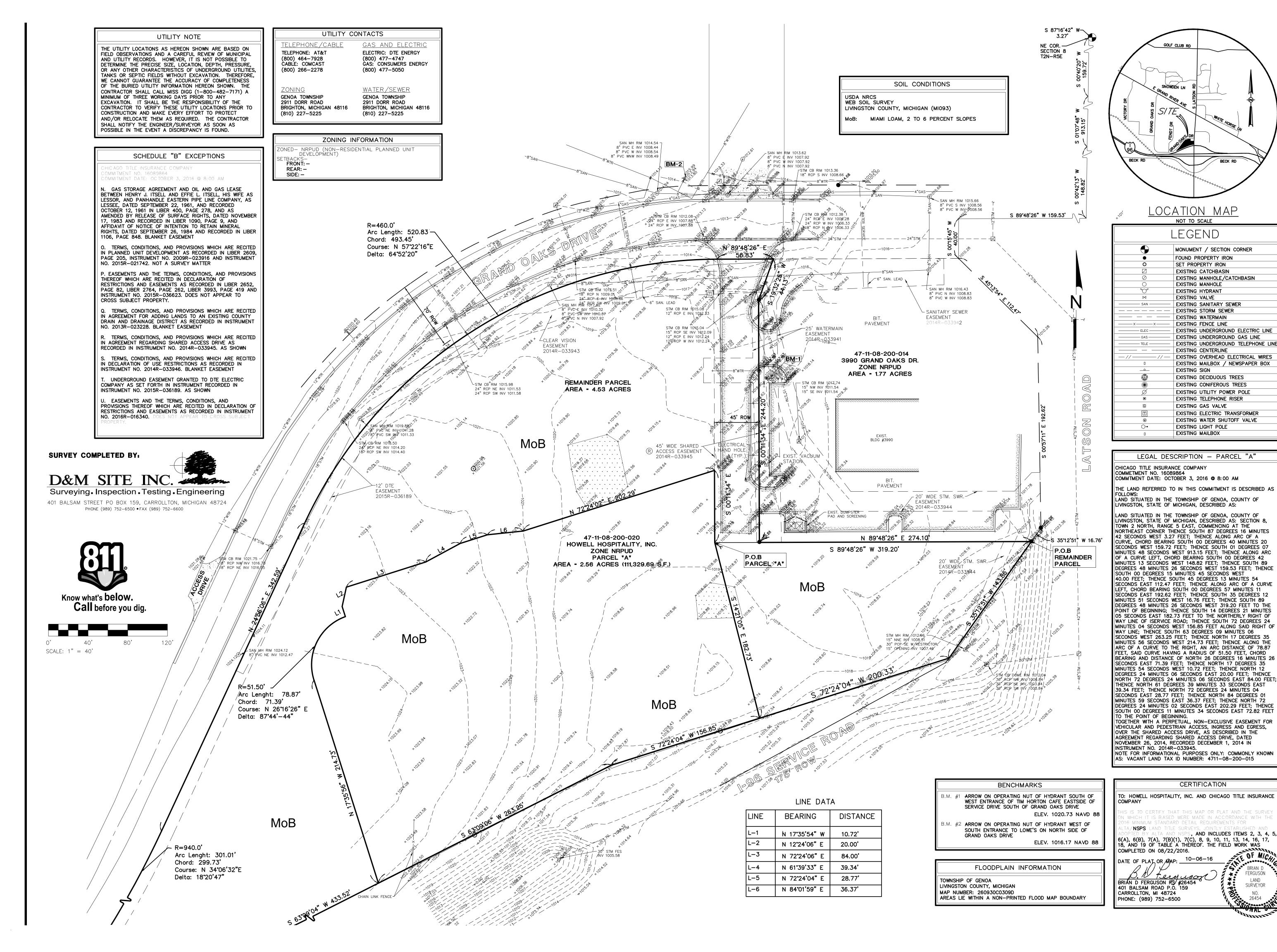
GENOA TOWNSHIP

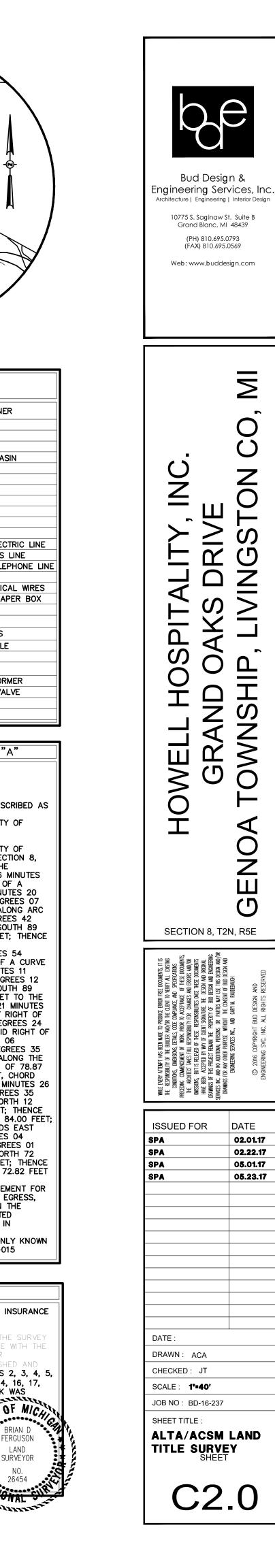
1911 DURR RUA

(810) 227–5225

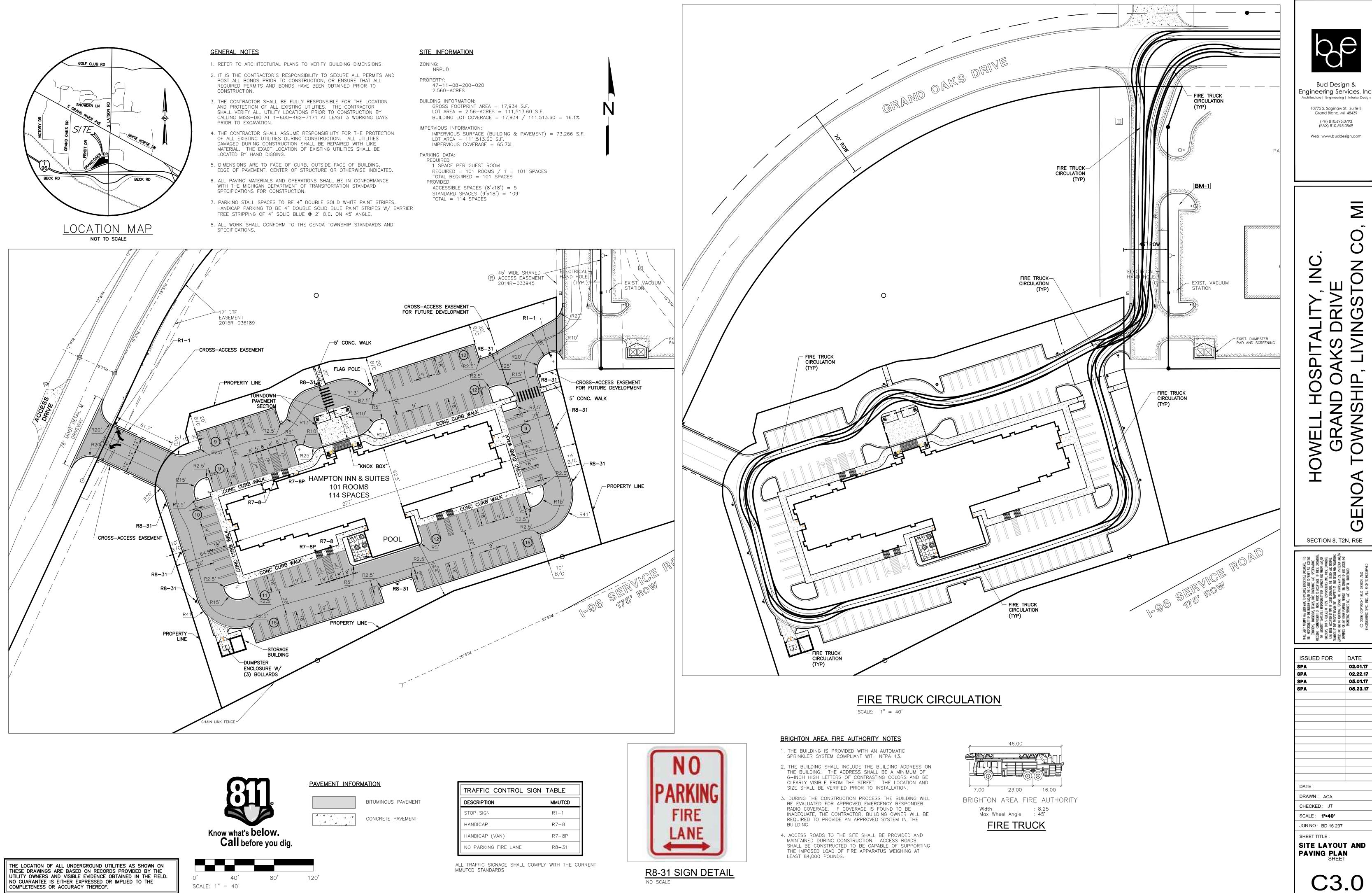
TOWNSHIP OF GENOA LIVINGSTON COUNTY, MICHIGAN MAP NUMBER: 260930C0309D AREAS LIE WITHIN A NON-PRINTED FLOOD MAP BOUNDARY



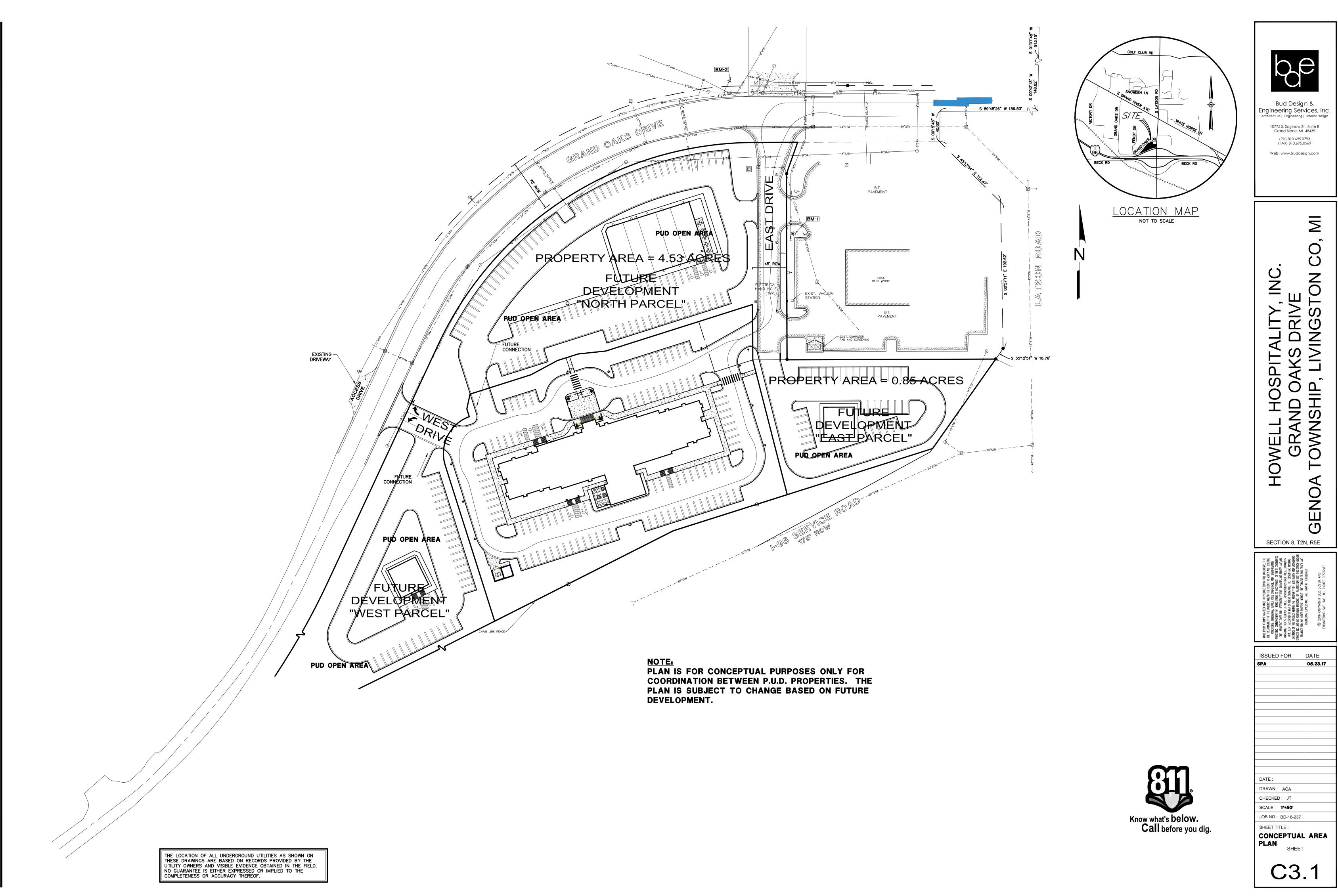




I AND



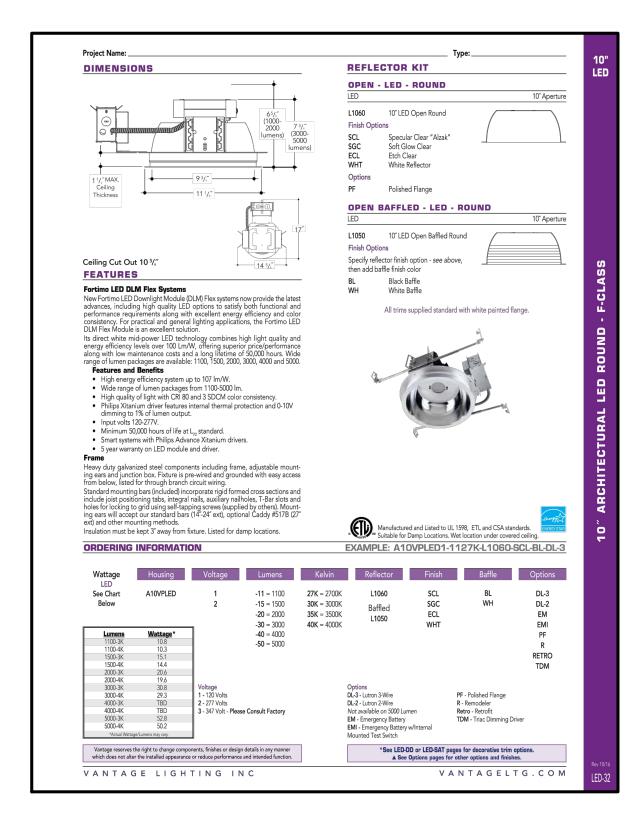
(PH) 810.695.0 (FAX) 810.695.0 Web: www.budde:	0569
HOWELL HOSPITALITY, INC. GRAND OAKS DRIVE	GENOA TOWNSHIP, LIVINGSTON CO, MI
MHLE ENERY ATTEMPT HAS BEEN MADE TO PRODUCE BROR FREE DOCIMIENTS, IT IS THE RESPONSIBILITY OF THE BUILDER AND/OR THE CLENT TO VERIFY ALL EXISTING CONDITORS, DIMENSIONS, DETAILS, CODE COMPLIANCE, AND SEPTENCINONS FRECEDING COMMENSIONS, DETAILS, CODE COMPLIANCE, AND SEPTENCINONS FRECEDING COMMENSIONS, ELTAILS, CODE COMPLIANCE, AND SEPTENCINONS FRECEDING, COMMENSIONS, ELTAILS, CODE COMPLIANCE, AND SERVISA, AND/OR OLISSIONS, BUT SE RELEAD OF THESE RESPONSIBILITIES ONCE THESE DOCUMENTS, HAR BEEN ACCEPTED BY WAY OF CLENT STANTURE. THE DESIGNA AND ORGINAL DRAWNES FOR AND ORDITIONAL PRESIONS OR PARTIES MAY USE THIS DESIGNA AND ORGINAL DRAWNES FOR AND ONDITIONAL PRESIONS OR PARTIES MAY USE THIS DESIGNA AND/OR DRAWNES FOR AND ONDITIONAL PRESIONS OR PARTIES MAY USE THIS DESIGNA AND/OR DRAWNES FOR AND OTHER PUBBOSE. MILLIOT THE CONSENT OF BID DESIGNA AND/OR	ENGMERANG SEMICES INC., AND GARY AL RAUDEBAUGH © 2016 COPYRIGHT BUD DESIGN AND ENGINEERING SVC. INC. ALL RIGHTS RESERVED
ISSUED FOR SPA SPA SPA SPA	DATE 02.01.17 02.22.17 05.01.17 05.23.17
DATE : DRAWN : ACA CHECKED : JT SCALE : <b>1'=40'</b> JOB NO : BD-16-237	
SHEET TITLE : SITE LAYOUT PAVING PLAN SHEET C3	_

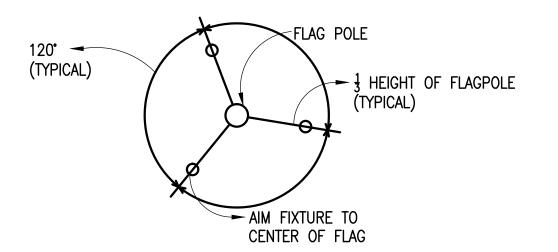




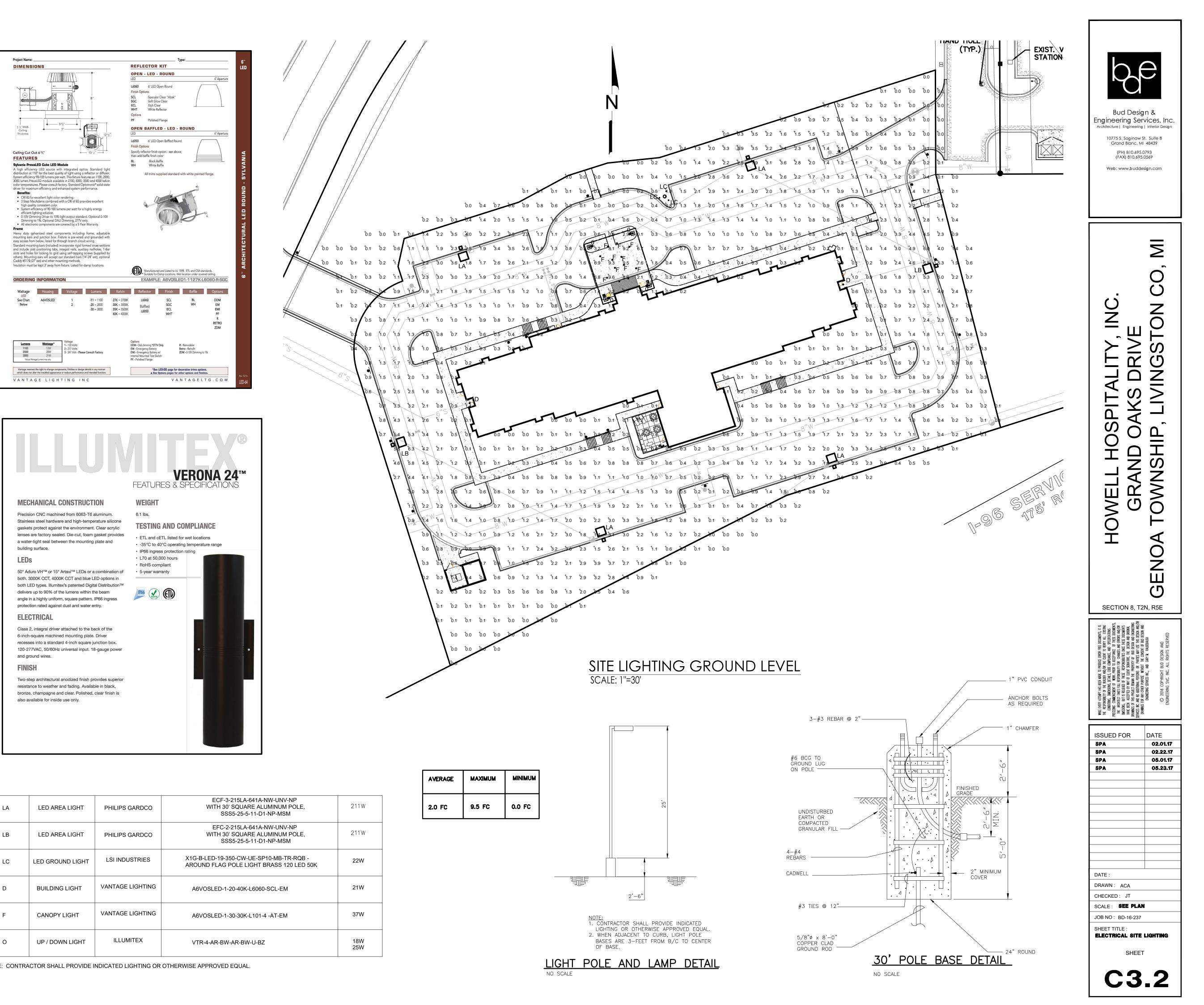
LLC4<sup>14</sup> #4 lens for 25-40° mounted heights BD Bit S-39-00.
 BD Bit Desree
 Bit desr Available in 1284–2774 Voltages only
 (UAY, 26, 288, 240 & 277).
 MR50 and ARD-MR0 luminaines require one motion
 MR50 and ARD-MR0 luminaines require one motion
 Sensor pole, ordered separatery is separate to separate dmming device. 10. If ordered with DIM, APD, MRI, MRSO, APD - MRI, APD - MRO, dmming with not be connected to NI configurable with PC/PCB/PCR5/PCR7 Options. See page 7-8 for more info.

EcoForm\_ECF\_LED\_11/15\_page 1 of 8



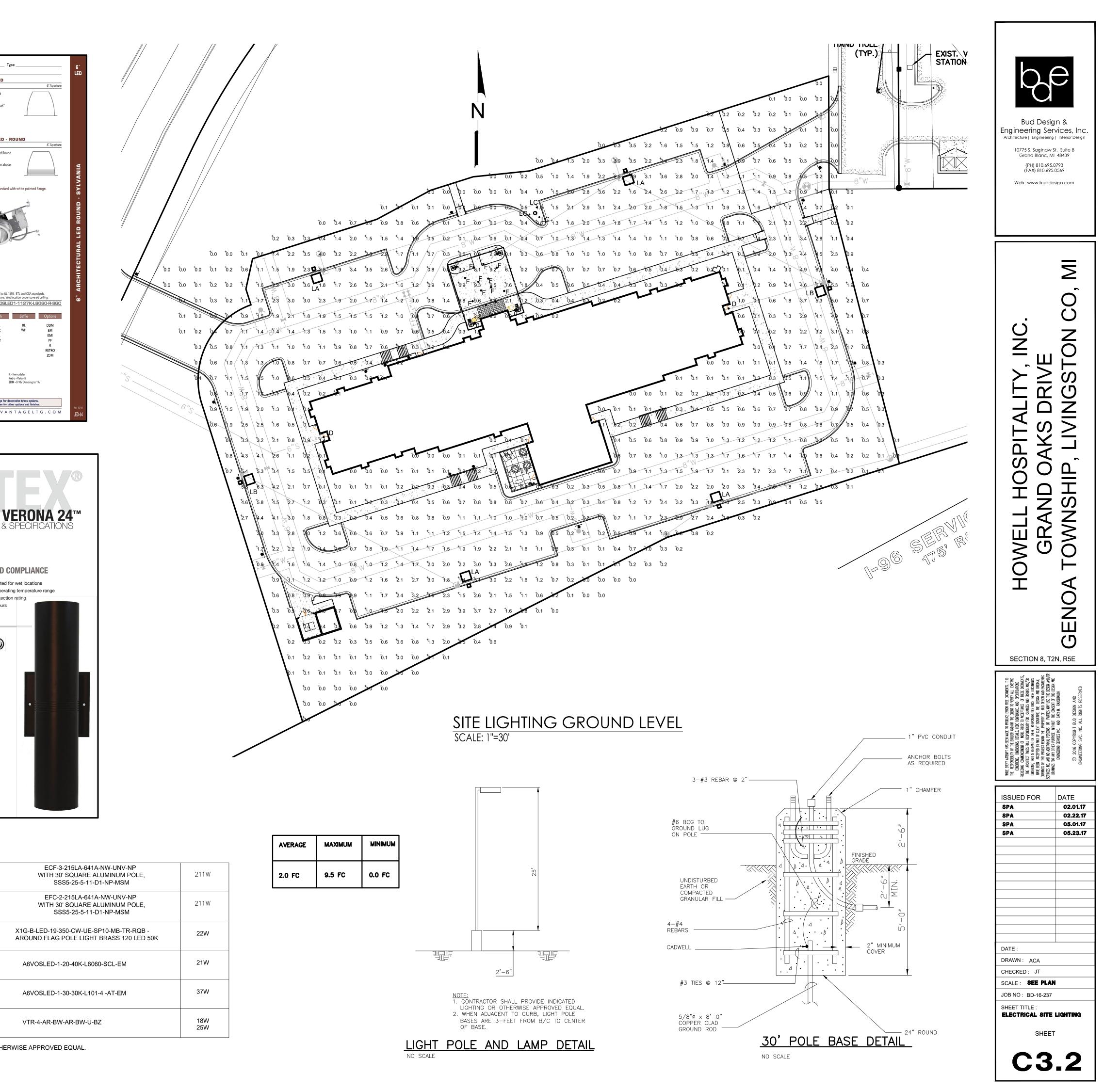




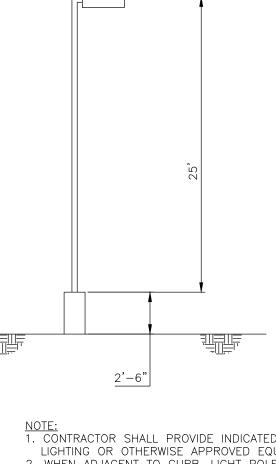


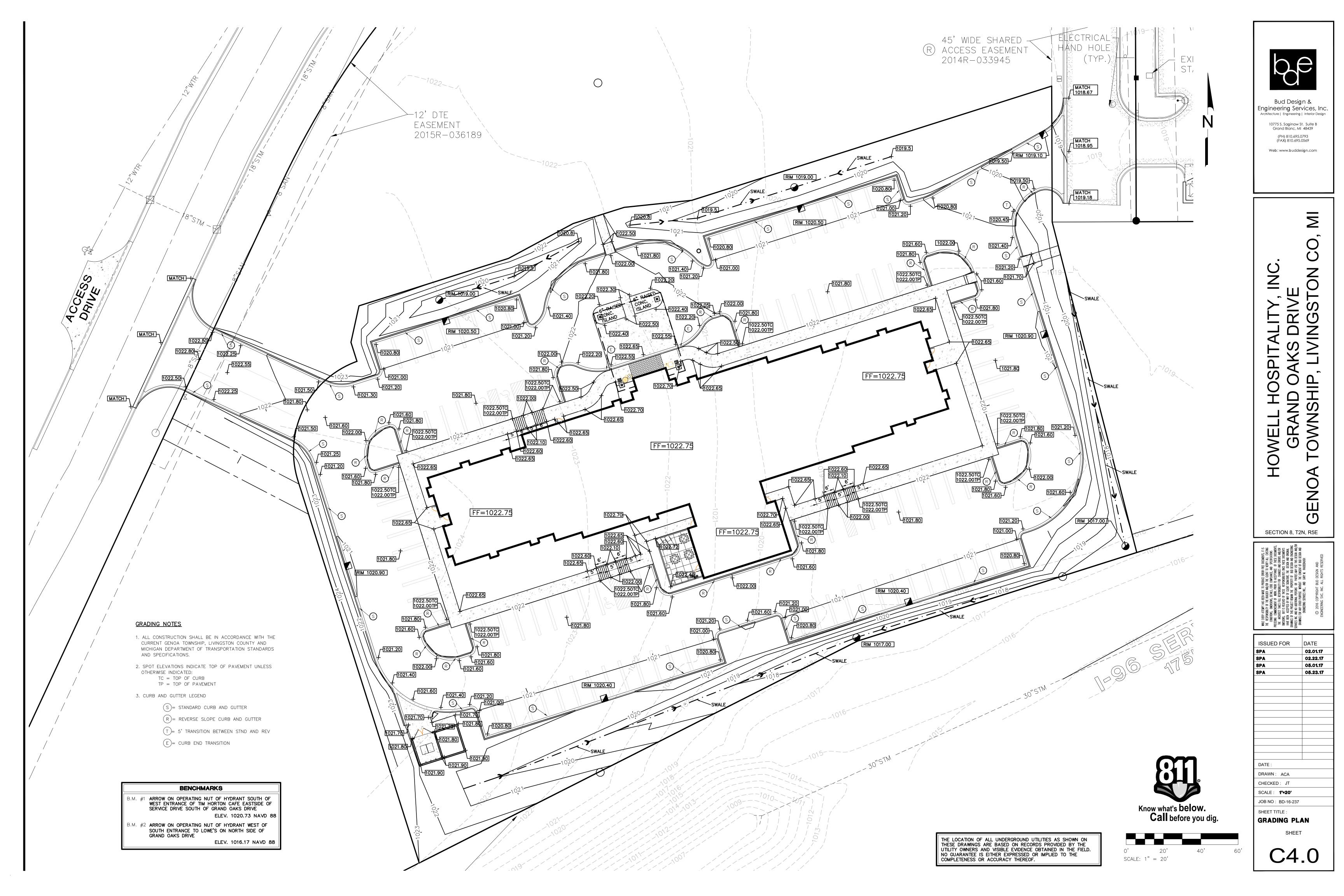
LED AREA LIGHT	PHILIPS GARDCO	ECF-3-215LA-641A-NW-UNV-NP WITH 30' SQUARE ALUMINUM POLE, SSS5-25-5-11-D1-NP-MSM	211W
LED AREA LIGHT	PHILIPS GARDCO	EFC-2-215LA-641A-NW-UNV-NP WITH 30' SQUARE ALUMINUM POLE, SSS5-25-5-11-D1-NP-MSM	211W
LED GROUND LIGHT	LSI INDUSTRIES	X1G-B-LED-19-350-CW-UE-SP10-MB-TR-RQB - AROUND FLAG POLE LIGHT BRASS 120 LED 50K	22W
BUILDING LIGHT	VANTAGE LIGHTING	A6VOSLED-1-20-40K-L6060-SCL-EM	21W
CANOPY LIGHT	VANTAGE LIGHTING	A6VOSLED-1-30-30K-L101-4 -AT-EM	37W
UP / DOWN LIGHT	ILLUMITEX	VTR-4-AR-BW-AR-BW-U-BZ	18W 25W
	LED AREA LIGHT LED GROUND LIGHT BUILDING LIGHT CANOPY LIGHT	LED AREA LIGHT     PHILIPS GARDCO       LED GROUND LIGHT     LSI INDUSTRIES       BUILDING LIGHT     VANTAGE LIGHTING       CANOPY LIGHT     VANTAGE LIGHTING	LED AREA LIGHTPHILIPS GARDCOWITH 30' SQUARE ALUMINUM POLE, SSS5-25-5-11-D1-NP-MSMLED AREA LIGHTPHILIPS GARDCOEFC-2-215LA-641A-NW-UNV-NP WITH 30' SQUARE ALUMINUM POLE, SSS5-25-5-11-D1-NP-MSMLED GROUND LIGHTLSI INDUSTRIESX1G-B-LED-19-350-CW-UE-SP10-MB-TR-RQB - AROUND FLAG POLE LIGHT BRASS 120 LED 50KBUILDING LIGHTVANTAGE LIGHTINGA6VOSLED-1-20-40K-L6060-SCL-EMCANOPY LIGHTVANTAGE LIGHTINGA6VOSLED-1-30-30K-L101-4 -AT-EM

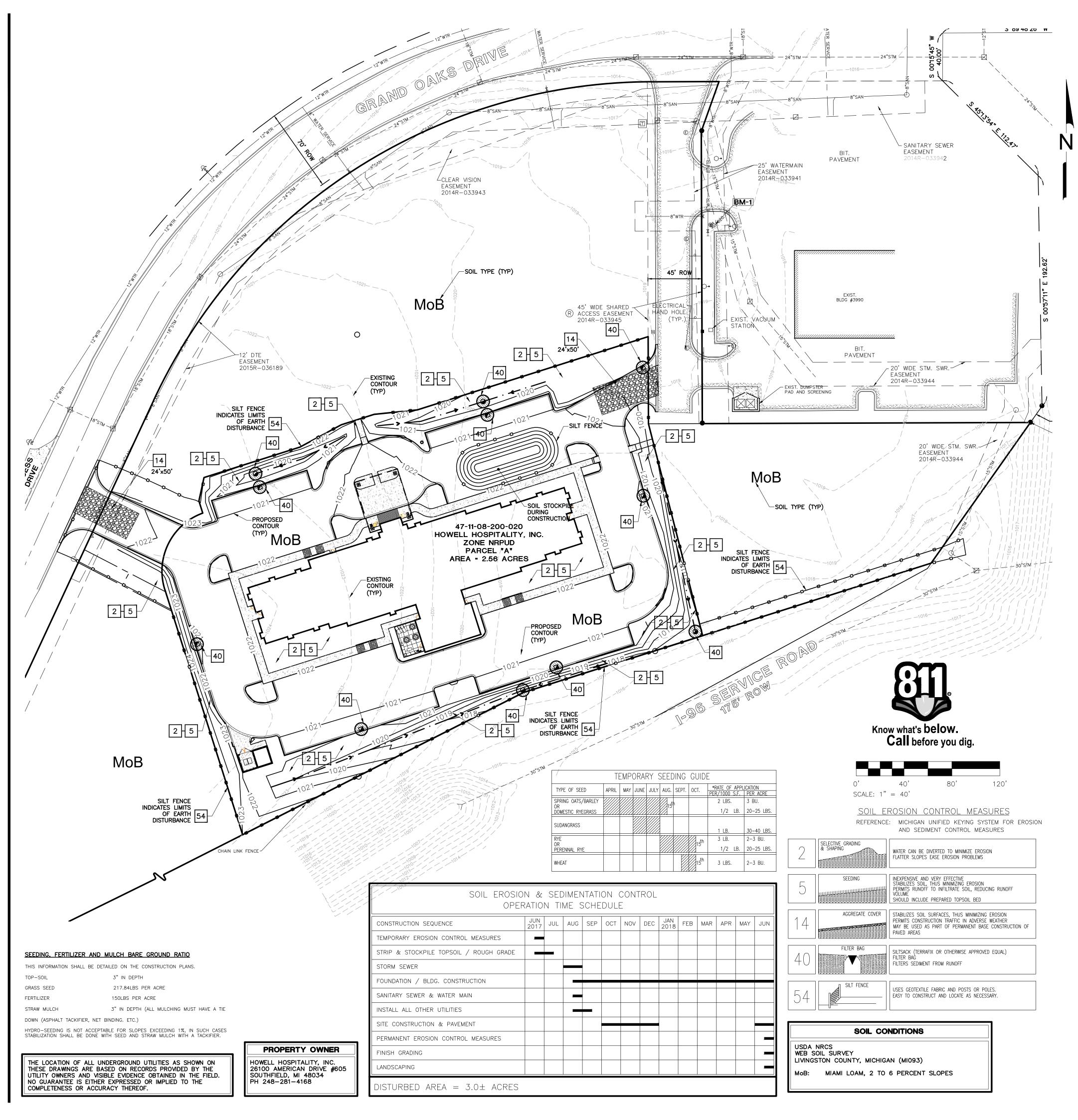
NOTE: CONTRACTOR SHALL PROVIDE INDICATED LIGHTING OR OTHERWISE APPROVED EQUAL.



AVERAGE	MAXIMUM	MINIMUM
2.0 FC	9.5 FC	0.0 FC







LIVINGSTON COUNTY DRAIN COMMISSIONER AND THE CITY OF BRIGHTON.

EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.

TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN

BEEN ACCOMPLISHED.

AGAINST ANY TRANSPORTING OF DIRT OFF THE WORK AREA.

VEGETATION AS MUCH AS POSSIBLE IDENTIFIED FOR REMOVAL.

COMPLETION OF FINAL GRADING. I. THE CONTRACTOR SHALL SWEEP THE EXISTING STREETS SURROUNDING THE PROJECT SITE AS NEEDED.

- DUST IN CHECK AT ALL TIMES. THE CONTRACTOR SHALL RESPOND IMMEDIATELY TO ANY AND ALL COMPLAINTS.
- PERMIT REGULATIONS, INCLUDING BUT NOT LIMITED TO, BE MADE AVAILABLE TO THE TOWNSHIP.

## MAINTENANCE NOTES

IMMEDIATELY. SHOULD BE REPLACED.

DURING EARTH CHANGE ACTIVITIES.

<u>3. SILT FENCE</u> SILT FENCE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

THE SOIL CAN BE ADDED TO THE SOIL STOCKPILE.

UNDER THE FENCE), THE FENCE SHOULD BE REMOVED AND REINSTALLED FOLLOWING THE PROCEDURES GIVEN ABOVE.

IMMEDIATELY.

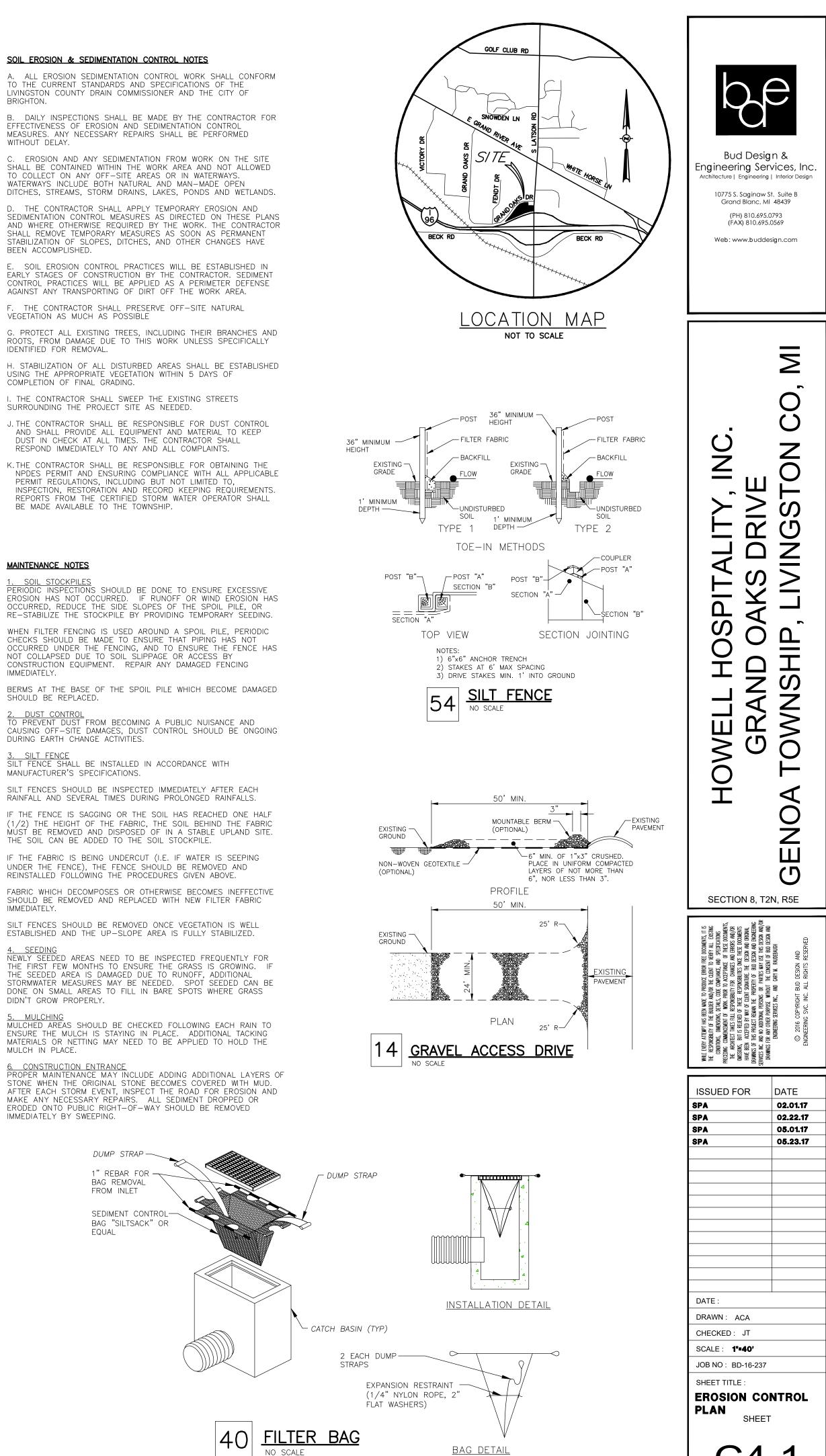
THE SEEDED AREA IS DAMAGED DUE TO RUNOFF, ADDITIONAL DIDN'T GROW PROPERLY.

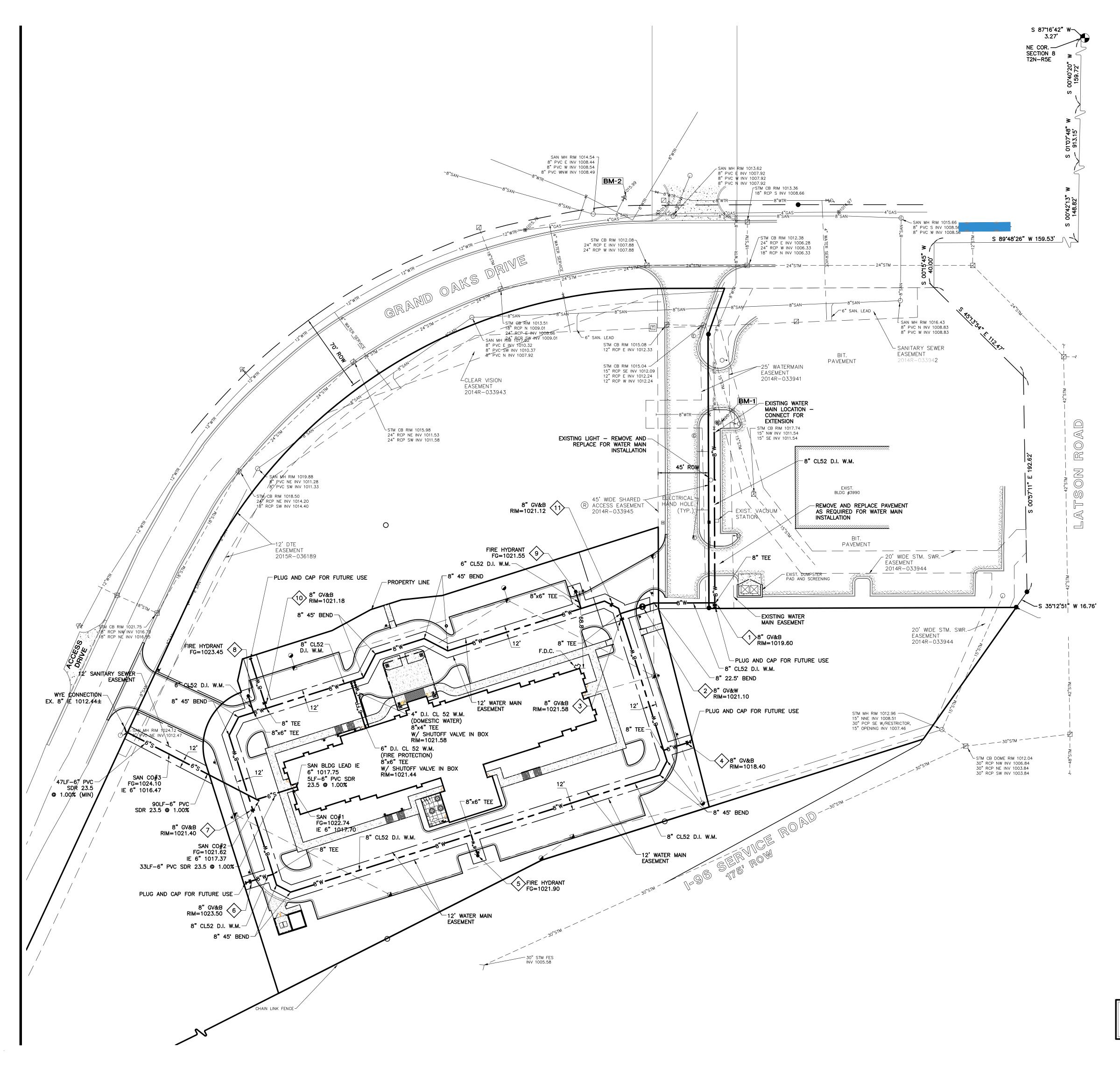
MULCH IN PLACE.

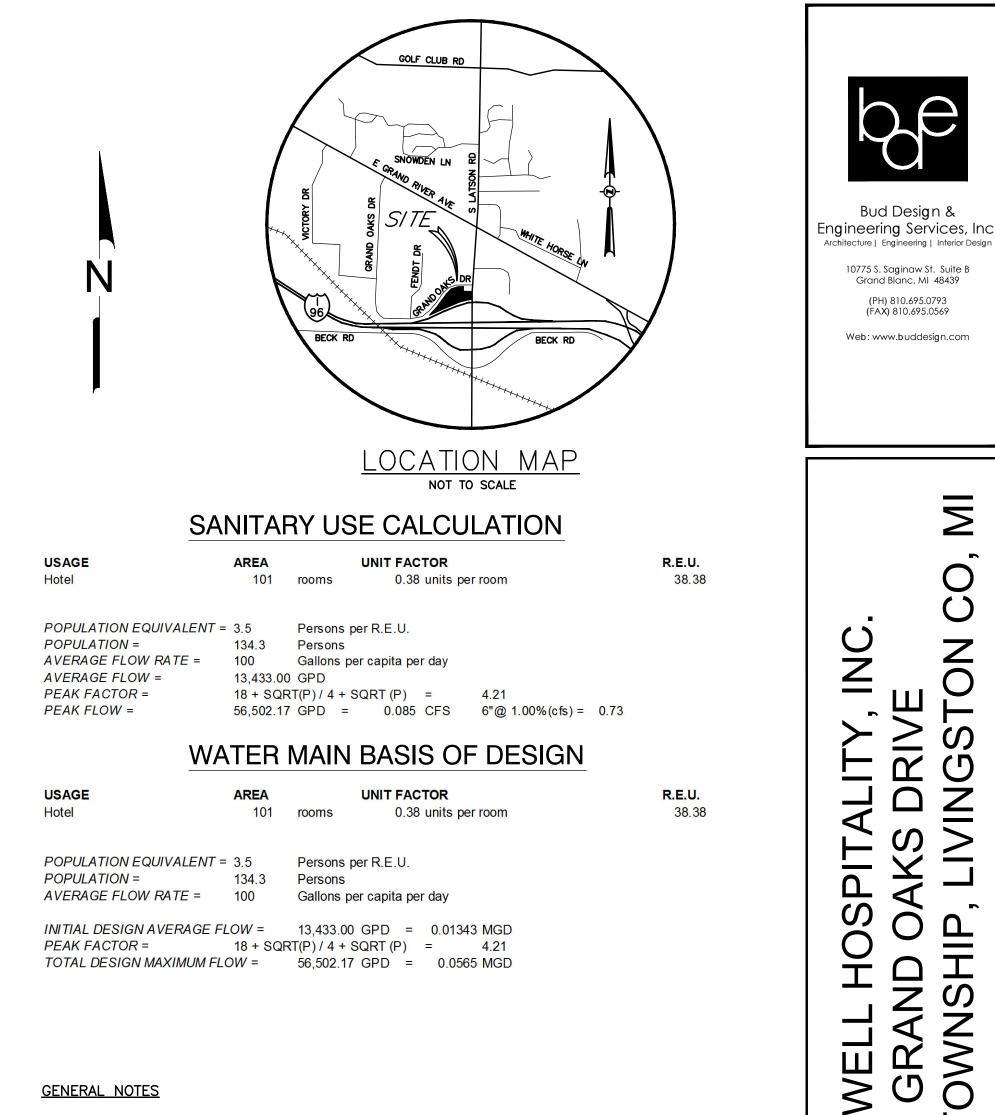
IMMEDIATELY BY SWEEPING.

DUMP STRAP -1" REBAR FOR -BAG REMOVAL FROM INLET

SEDIMENT CONTROL BAG "SILTSACK" OR EQUAL







## GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENOA TOWNSHIP AND M.H.O.G. STANDARDS AND SPECIFICATIONS. 2. SHOP DRAWINGS SHALL BE SUBMITTED BY THE UNDERGROUND CONTRACTOR FOR ALL WATER AND SANITARY INSTALLATION.

3. CONTRACTOR SHALL SUBMIT RECORD "AS-BUILT" PLANS AFTER CONSTRUCTION.

4. MAINTAIN A MINIMUM HORIZONTAL SEPARATION BETWEEN WATER SERVICE AND ANY OTHER UTILITY OF 10-FEET. THE MINIMUM VERTICAL CLEARANCE BETWEEN A WATER MAIN AND A SEWER SHALL BE 18-INCHES.

5. NO GROUNDWATER, STORM WATER, CONSTRUCTION WATER, DOWNSPOUT DRAINAGE OR WEEP TILE DRAINAGE SHALL BE ALLOWED TO ENTER ANY SANITARY SEWER INSTALLATION. 6. REFER TO PLUMBING PLANS TO VERIFY BUILDING UTILITY CONNECTION LOCATIONS. SITE UTILITY LOCATIONS TO

TERMINATE 5' OUTSIDE OF BUILDING. 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL PERMITS AND POST ALL BONDS PRIOR TO CONSTRUCTION, OR ENSURE THAT ALL REQUIRED PERMITS AND BONDS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION.

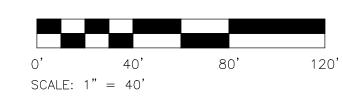
8. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING MISS-DIG AT 1-800-482-7171 AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATION.

9. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH LIKE MATERIAL. THE EXACT LOCATION OF EXISTING UTILITIES SHALL BE LOCATED BY HAND DIGGING. 10.DIMENSIONS ARE TO FACE OF CURB, OUTSIDE FACE OF BUILDING, EDGE OF PAVEMENT, CENTER OF STRUCTURE OR

OTHERWISE INDICATED. 11.CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND REPORT ALL FINDINGS TO ENGINEER.



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



THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN ON
THE ECCATION OF ALL UNDERGROUND UTILITIES AS SHOWN ON
THESE DRAWINGS ARE BASED ON RECORDS PROVIDED BY THE
UTILITY OWNERS AND VISIBLE EVIDENCE OBTAINED IN THE FIELD.
NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED TO THE
COMPLETENESS OR ACCURACY THEREOF.
COMPLETENESS ON ACCOUNT THENEOR.

SHEET TITLE : UTILITY PLAN SHEET C5.0

R

C

SECTION 8, T2N, R5E

n 15, 11 15 Existing Attons Documents, 5 and/or 0cuments 0cuments original Sign and/of Sign and/of Sign and/of

JAGE TO PRODUCE FREAD PROCUMENTS BER AND/OR THE CLENT TO VERFY ALL EV ALLS, CODE COMPLANCE, AND SFECTIFICATO RAC, FRONT TO ACCEPTANCE OF THESE DOCAT PONSBULTY FOR CHANCES AND FREAD ROLAR FREAT RESONNISHINGE. THE DESIGN AND DRI THE PROPERTY OF BUD DESIGN AND DRI READ SC OR PARTIES MAY DRI BIG DESIGN READS OR PARTIES MAY DRI BIG DESIGN SC MITHOUT THE CONSENT OF BUD DESIGN SC MITHOUT THE CONSENT OF BUD DESIGN SC MITHOUT THE CONSENT OF BUD DESIGN

WHILE FLEPY ATTEN THE RESPONSIBILIT ERESPONSIBILIT CONDITIONS, COMEN THE ARCHTECT 1 PRECENC, SOUNS, BUT 14 OMESONS, BUT 14 DRAMINGS OF THE P DRAMINGS OF THE

n maue 10 pro Ilder and/or Etails, code 0 Work, prior 1 Eesponsibility F these resp

ISSUED FOR

I SPA

SPA

DATE :

DRAWN : ACA

CHECKED: JT SCALE : 1'=40'

JOB NO: BD-16-237

O

Ž

Ш

 $\bigcirc$ 

BUD

E S

DATE

02.01.17

02.22.17

05.01.17

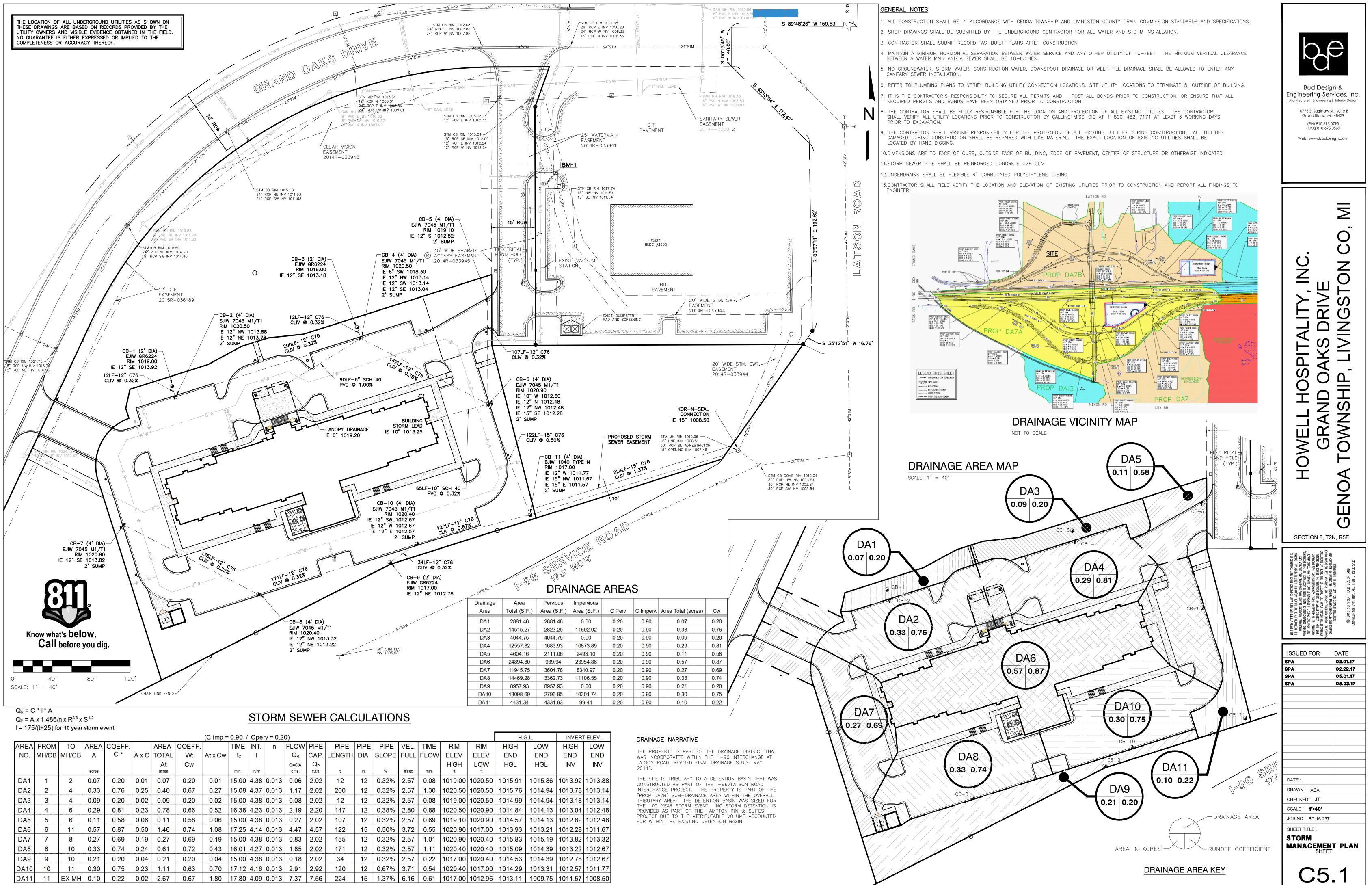
05.23.17

Ш

 $\geq$ 

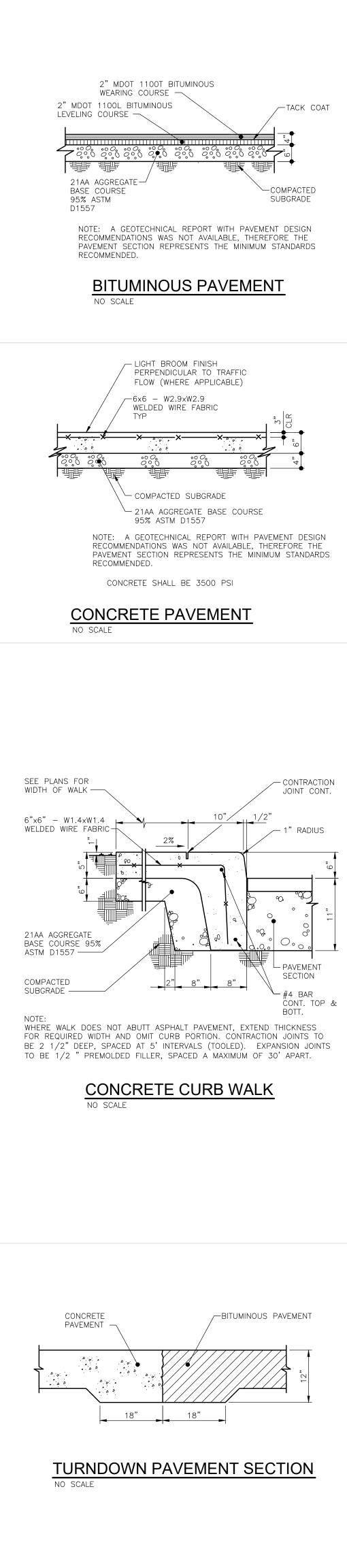
Ο

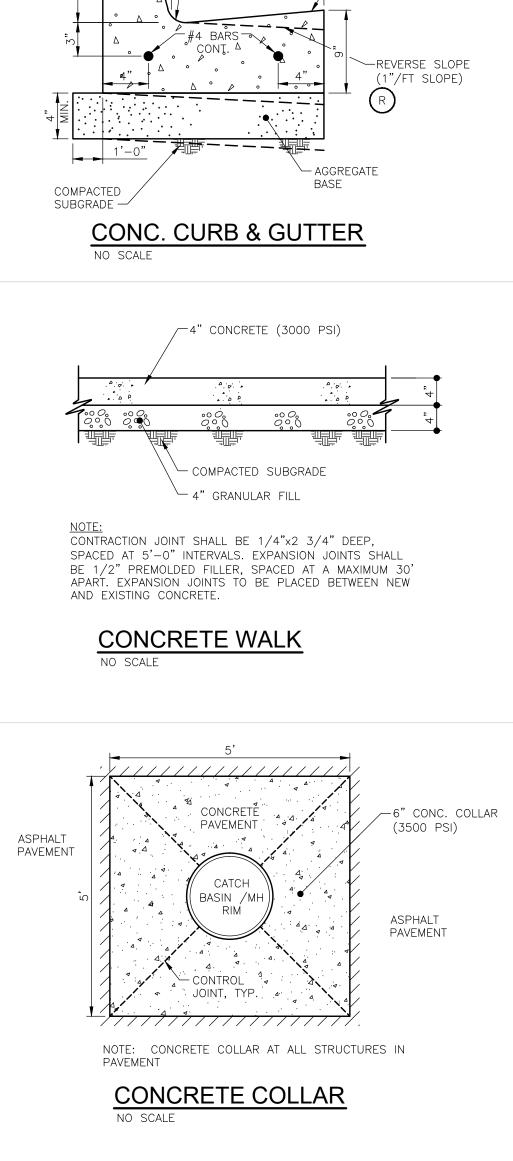
Т



								(C imp =	: 0.90 /	Сре	rv = 0.2	0)							
AREA	FROM	TO	AREA	COEFF.		AREA	COEFF.		TIME	INT.	n	FLOW	PIPE	PIPE	PIPE	PIPE	VEL.	TIME	RIM
NO.	MH/CB	MH/CB	Α	C *	AxC	TOTAL	<b>V</b> ∕∕t	At x Cw	tc	I		Q <sub>R</sub>	CAP.	LENGTH	DIA.	SLOPE	FULL	FLOW	ELEV
						At	Cw					Q=CIA	Q <sub>P</sub>						HIGH
			acres			acres			mın.	ın/hr		c.t.s.	c.t.s.	tt	in.	%	tt/sec	min.	tt
DA1	1	2	0.07	0.20	0.01	0.07	0.20	0.01	15.00	4.38	0.013	0.06	2.02	12	12	0.32%	2.57	0.08	1019.00
DA2	2	4	0.33	0.76	0.25	0.40	0.67	0.27	15.08	4.37	0.013	1.17	2.02	200	12	0.32%	2.57	1.30	1020.50
DA3	3	4	0.09	0.20	0.02	0.09	0.20	0.02	15.00	4.38	0.013	0.08	2.02	12	12	0.32%	2.57	0.08	1019.00
DA4	4	6	0.29	0.81	0.23	0.78	0.66	0.52	16.38	4.23	0.013	2.19	2.20	147	12	0.38%	2.80	0.88	1020.50
DA5	5	6	0.11	0.58	0.06	0.11	0.58	0.06	15.00	4.38	0.013	0.27	2.02	107	12	0.32%	2.57	0.69	1019.10
DA6	6	11	0.57	0.87	0.50	1.46	0.74	1.08	17.25	4.14	0.013	4.47	4.57	122	15	0.50%	3.72	0.55	1020.90
DA7	7	8	0.27	0.69	0.19	0.27	0.69	0.19	15.00	4.38	0.013	0.83	2.02	155	12	0.32%	2.57	1.01	1020.90
DA8	8	10	0.33	0.74	0.24	0.61	0.72	0.43	16.01	4.27	0.013	1.85	2.02	171	12	0.32%	2.57	1.11	1020.40
DA9	9	10	0.21	0.20	0.04	0.21	0.20	0.04	15.00	4.38	0.013	0.18	2.02	34	12	0.32%	2.57	0.22	1017.00
DA10	10	11	0.30	0.75	0.23	1.11	0.63	0.70	17.12	4.16	0.013	2.91	2.92	120	12	0.67%	3.71	0.54	1020.40
DA11	11	EX MH	0.10	0.22	0.02	2.67	0.67	1.80	17.80	4.09	0.013	7.37	7.56	224	15	1.37%	<mark>6.1</mark> 6	0.61	1017.00



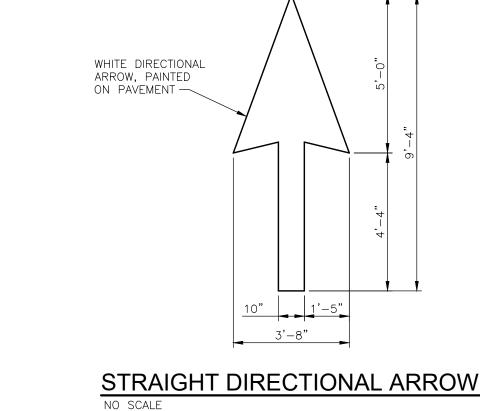


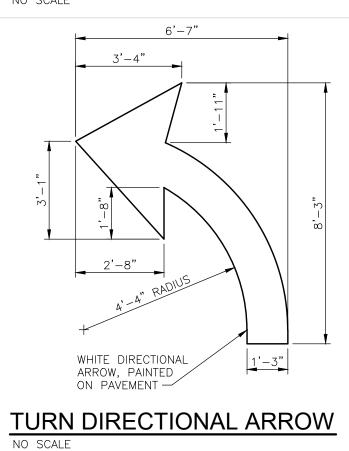


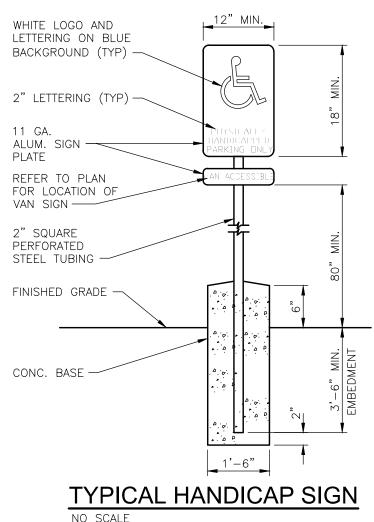
1'-6"

(1"/FT SLOPE)

5-1/2" 1-3/4"







5' CURB TRANSITION

 $\mathcal{O} \mathcal{O}$ 

CONC. CURB & GUTTER

**TYPICAL CURB END TRANSITION** 

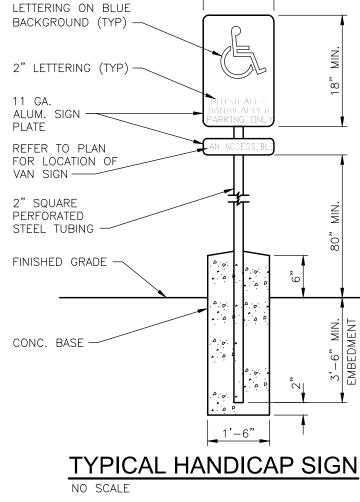
000 000

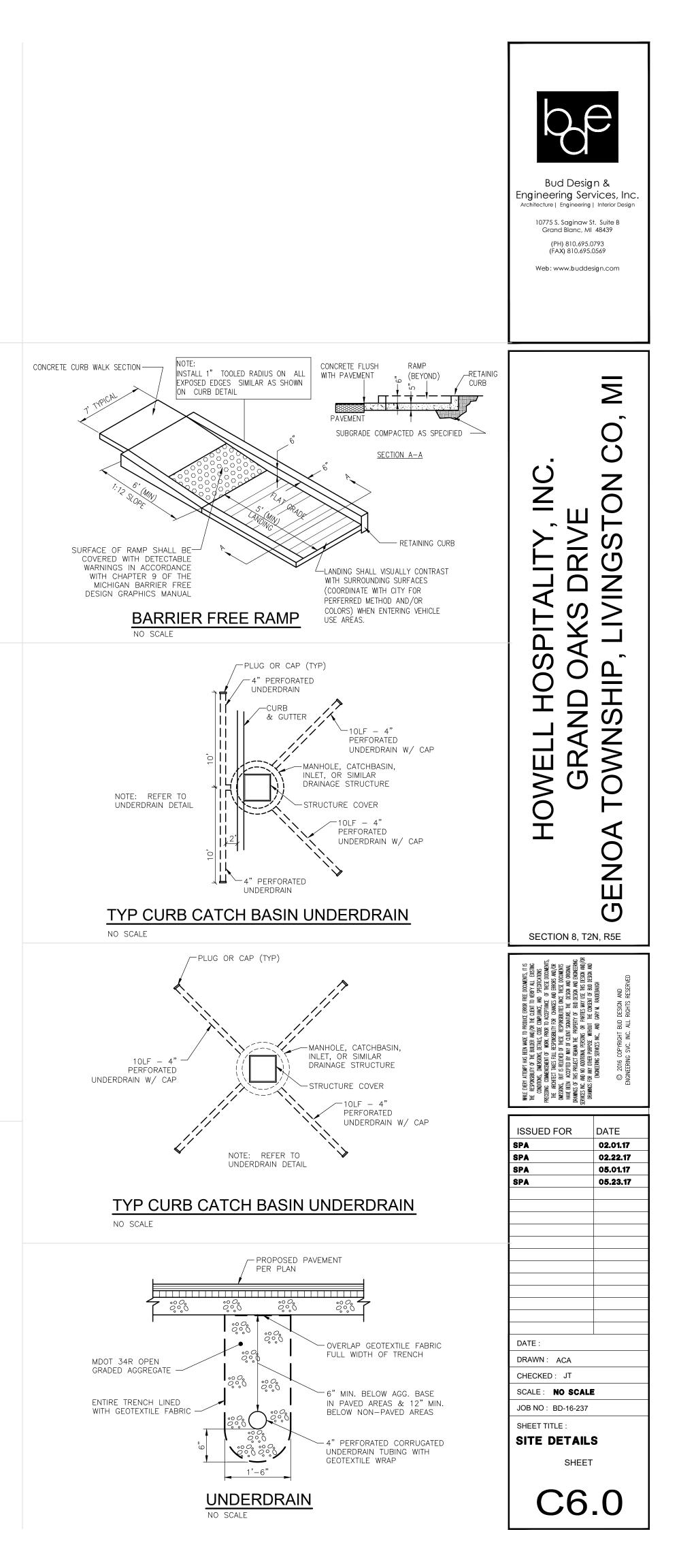
TOP OF CURB-

ୖୄୢୖୄୢୖୖୄ

GUTTER LINE -

NO SCALE





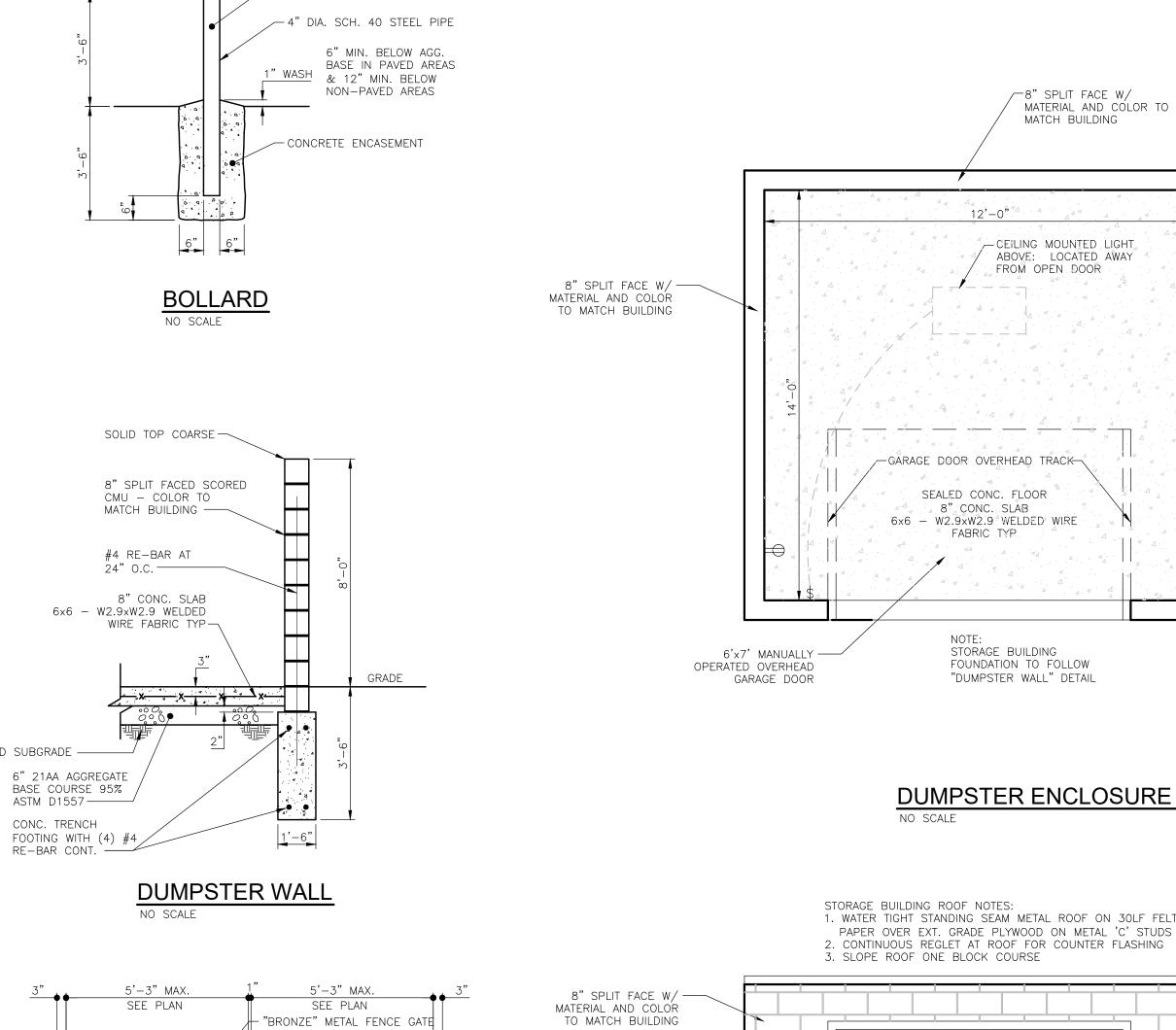
- TROWEL TOP ROUND

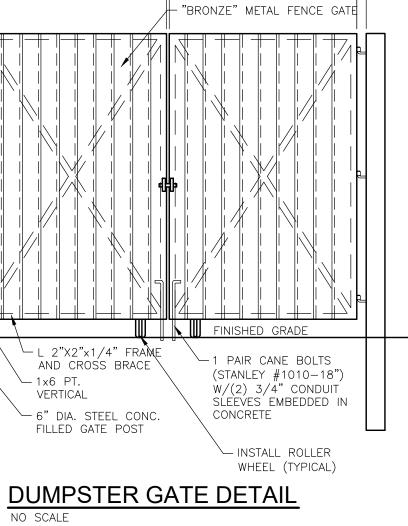
- CONC. FILLED

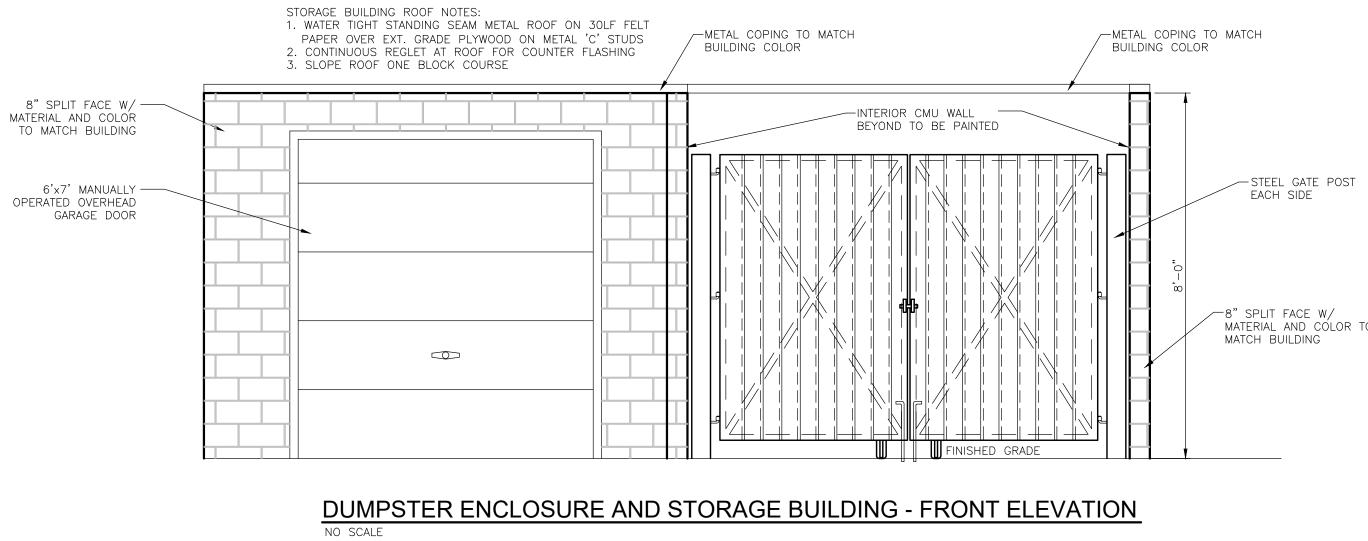
COMPACTED SUBGRADE ------

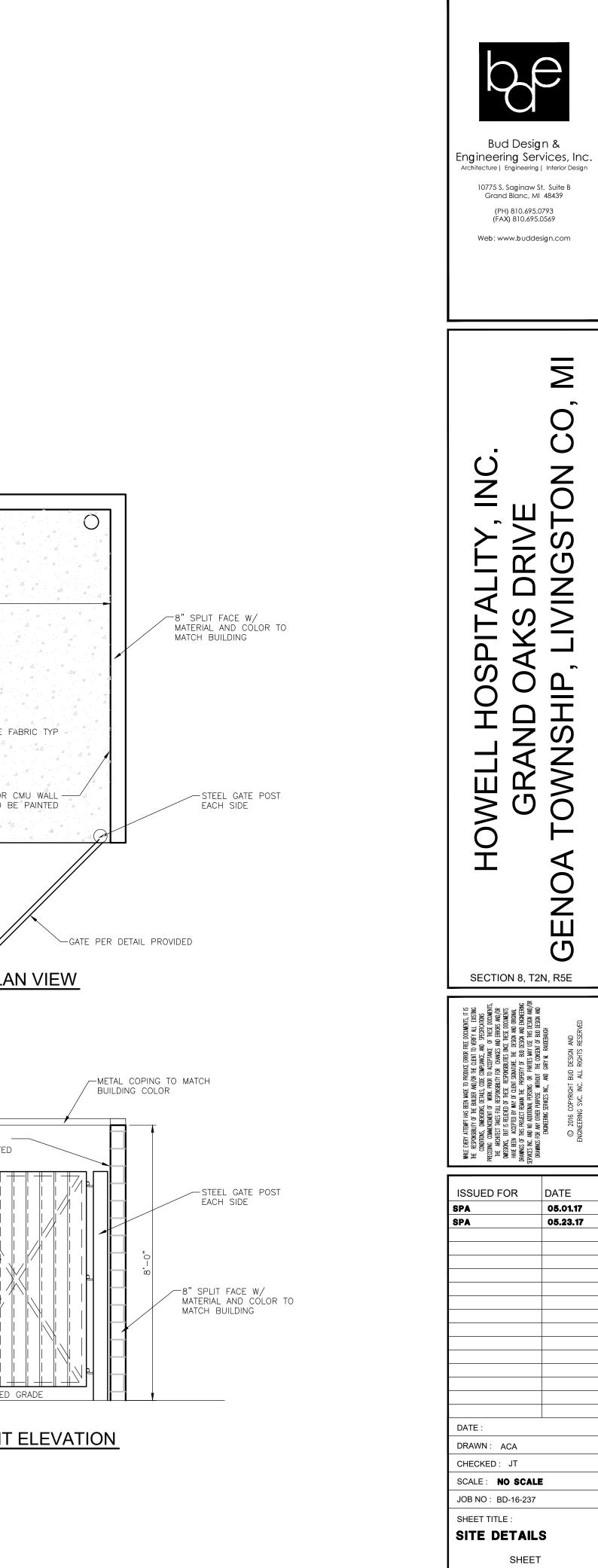
\_\_\_\_\_

NO SCALE



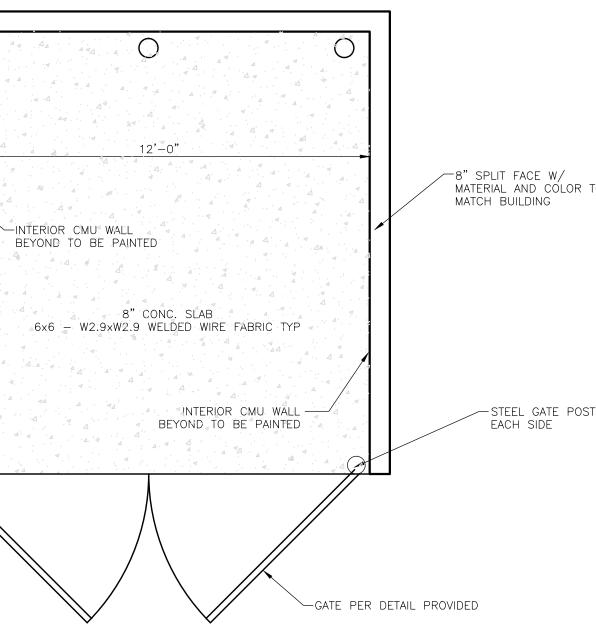




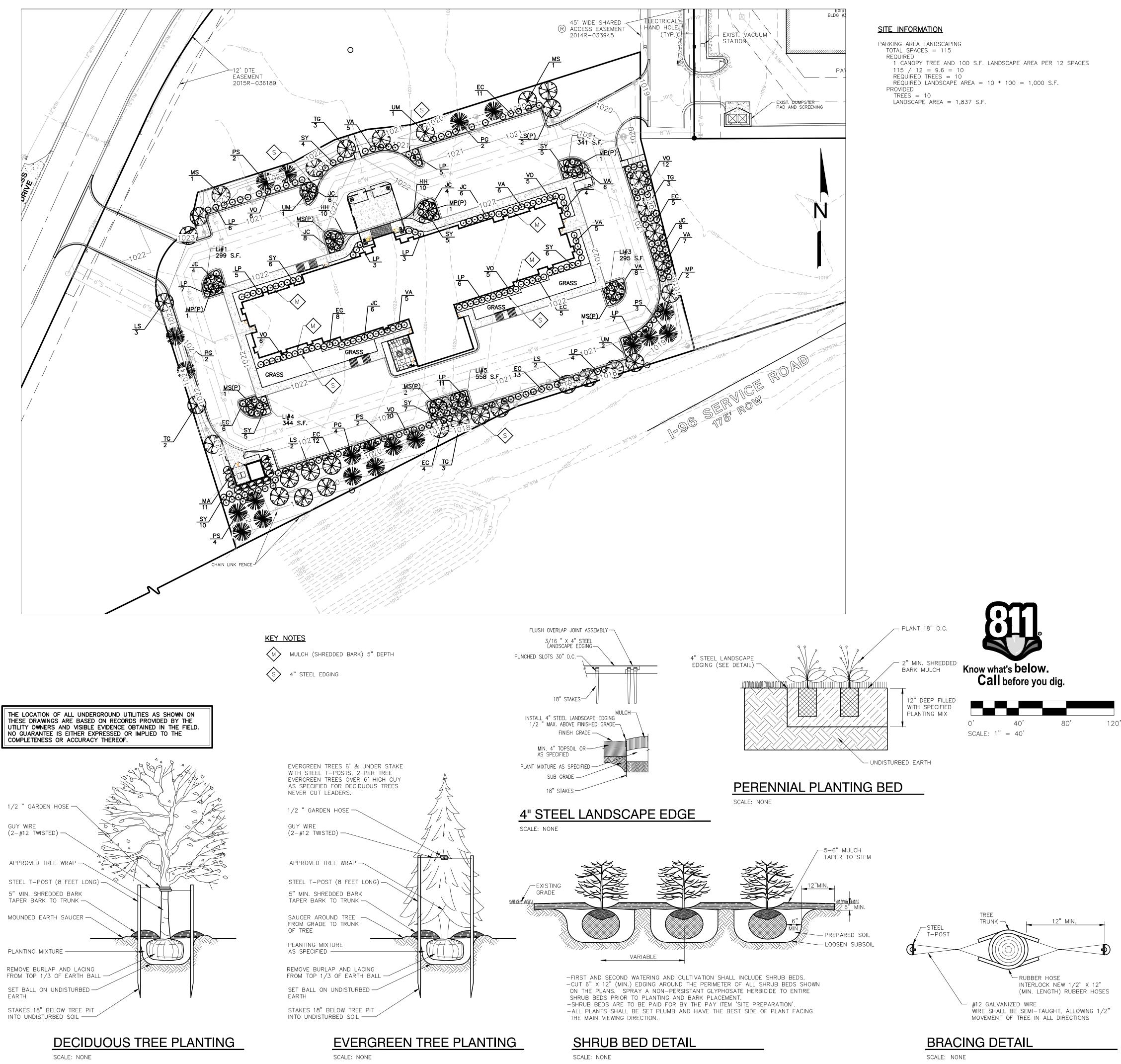


C6.1

(3) CONCRETE FILLED STEEL BOLLARDS



# DUMPSTER ENCLOSURE AND STORAGE BUILDING - PLAN VIEW



# CARE FOR PLANTS BEFORE PLANTING

PLANTS DESIGNATED "BB" SHALL BE BALLED AND BURLAPPED WITH FIRM NATURAL BALLS OF EARTH. CRACKED, LOOSENED OR BROKEN BALLS SHALL NOT BE PLANTED. THEY SHALL BE MARKED WITH SPRAY PAIN AND IMMEDIATELY REMOVED FROM THE JOB SITE. IMMEDIATELY FOLLOWING DELIVERY AT THE JOB SITE, ALL PLANTS THAT WILL NOT BE PLANTED THAT SAME

THE TRUNKS AND BRANCHES OF ALL TREES SHALL BE PROTECTED FROM INJURY OF ANY KIND DURING ALL OPERATIONS. THE OWNER'S REPRESENTATIVE SHALL REJECT ANY TREES THAT ARE INJURED.

DAY SHALL BE "HEELED IN" WITH SHREDDED BARK OR MOIST SOIL AND KEPT MOIST UNTIL PLANTED.

## <u>PLANTING</u>

THE CONTRACTOR IS RESPONSIBLE FOR PLANTING MATERIALS PLUMB. SET THE TOP OF THE ROOT BALL AT OR SLIGHTLY HIGHER THAN THE SURROUNDING GRADE. PLANTS SHALL BE FACED TO GIVE THE BEST APPEARANCE OR RELATIONSHIP TO ADJACENT STRUCTURES. NO FILLING WILL BE PERMITTED AROUND TRUNK OR STEMS. WHEN THE PLANT HAS BEEN PROPERLY SET, THE HOLE SHALL BE BACKFILLED TO 1/2 THE DEPTH OF THE BALL WITH PREPARED TOPSOIL MIXTURE, FIRMLY PACKED AND WATERED-IN AT TIME OF PLANTING. LOOSED AND REMOVE BURLAP AND LACING FROM UPPER 1/3 OF THE ROOT BALL. BACKFILL WITH PREPARED TOPSOIL, WHICH AFTER COMPACTION IS FLUSH WITH THE SURROUNDING GROUND.

## <u>MULCHING</u>

ALL PLANT MATERIAL SHALL BE ENCIRCLED WITH A 4" MINIMUM COVERING OF NON-DYED SHREDDED BARK MULCH TO 6" OUTSIDE THE PLANTING HOLE, TAPERING MULCH TO 2" AROUND THE TRUNK OF ALL PLANTS. SUBMIT SAMPLE TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PLACEMENT. WOOD CHIPS SHALL NOT BE ALLOWED ON THIS JOB.

### WRAPPING DECIDUOUS TREES

TREE WRAP SHALL COVER TRUNKS OF ALL DECIDUOUS TREES BEGINNING BELOW THE SOIL LINE JUST ABOVE THE ROOTS. TIE WITH TWINE IN 5 PLACES, INCLUDING THE TOP AND BOTTOM OF WRAPPING. MASKING TAPE OR WIRE WILL NOT BE ALLOWED.

#### BRACING AND GUYING

GUYING SHALL BE EMPLOYED TO PREVENT LEANING OR LOOSENING OF THE TREE FROM THE BALL. BRACING MATERIAL SHALL BE T-POSTS PAINTED GREEN. GUYING MATERIAL SHALL BE 12 GAUGE WIRE AND GARDEN HOSE 1/2 INCH DIAMETER. GUY WIRE SHALL BE ENCASED IN HOSE TO PREVENT DIRECT CONTACT WITH THE TREE. DECIDUOUS TREES SHALL BE BRACED OR GUYED IMMEDIATELY AFTER THE TREE WRAPPING IS COMPLETE.

#### STEEL LANDSCAPE EDGING

4" STEEL LANDSCAPE EDGING SHALL BE USED ON THIS PROJECT. ALUMINUM OR PLASTIC EDGING WILL NOT BE ALLOWED.

<u>PRUNING</u> UPON COMPLETION, ALL PLANT MATERIAL MUST BE PRUNED. THE AMOUNT OF PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED BRANCHES AND TO COMPENSATE FOR THE LOSS OF ROOTS FROM TRANSPLANTING. ALL CUTS SHALL BE MADE FLUSH LEAVING NOT STUBS. PRUNING PAIN SHALL NOT BE USED.

### FINISHING AND CLEANING UP

IMMEDIATELY UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL CLEAN UP THE AREA OF SURPLUS MATERIALS. THE CONTRACTOR SHALL REPAIR AND RE-ESTABLISH TURF IN RUTTED AREAS.

## WARRANTY

THE LANDSCAPE INSTALLATION CONTRACTOR SHALL REPLACE ALL UNHEALTHY VEGETATION AND PLANTINGS WITHIN TWO (2) YEAR OF INITIAL PLANTING OR SUBSEQUENT PLANTING PERIOD.

DESCRIPTION THIS WORK SHALL CONSIST OF PROVIDING ALL NECESSARY MATERIALS, LABOR, EQUIPMENT, TOOLS AND SUPERVISION REQUIRED FOR THE EXECUTION AND GUARANTEE OF ALL PLANTINGS AND RELATED WORK AS SHOWN ON THE DRAWINGS.

PLANT MATERIALS SHALL CONFORM TO THE SIZES STATED ON THE PLANT LIST AND SHALL BE OF A MINIMUM SIZE OR LARGER. ALL MEASUREMENTS OF SPREAD, CALIPER, BALL SIZE, TRUNK CROWN RATIO, QUALITY DESIGNATIONS, ETC., SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "ANSI STANDARDS FOR NURSERY STOCK". PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED BY THE OWNER'S REPRESENTATIVE AT THE SITE PRIOR TO PLANTING. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL AT ANY TIME.

NURSERY STOCK SHALL BE PREPARED FOR SHIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT ANSI SPECIFICATION Z60.1 AND SHALL BE ENCLOSED OR COVERED DURING TRANSPORTATION TO PREVENT DRYING.

#### SITE PREPARATION

THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND PROTECT AND REPAIR UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THE PLANS OR NOT.

INDIVIDUAL HOLES SHALL BE CENTERED AT STAKED PLANT LOCATIONS. CONTRACTOR IS TO STAKE PRIOR TO PLACEMENT OF PLANT MATERIAL AND OBTAIN APPROVAL FROM THE OWNER'S REPRESENTATIVE. PLANTING HOLES SHALL BE DUG LARGE ENOUGH TO PERMIT PLACING PREPARED TOPSOIL 18" LATERALLY BEYOND THE ENDS OF THE ROOT BALLS FOR SHADE AND EVERGREEN TREES AND 6" LATERALLY FOR SHRUBS UNLESS OTHERWISE SPECIFIED.

EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AT THE TIME THE HOLE IS DUG. THE PLANTING HOLE SHALL BE BACKFILLED WITH PREPARED TOPSOIL THE SAME DAY THEY ARE DUG.

TOPSOIL SHALL AT FERTILE, FRIABLE NATURAL TOPSOIL OF CLAY LOAM CHARACTER CONTAINING AT LEAST 5% BUT NOT MORE THAN 20% BY WEIGHT OF ORGANIC MATTER WITH A PH RANGE FROM 6.0 TO 7.0. TOPSOIL SHALL BE FREE OF CLAY LUMPS, COURSE SAND, STONES, PLANT ROOTS, STICKS OR OTHER FOREIGN MATTER.

	PLANT LIST						
QUANITITY	KEY	BOTANICAL NAME	BOTANICAL NAME COMMON NAME				
49	SY	TAXUS S.M. 'SEBIAN'	SEBIAN YEW	24" HT B&B			
61	LP	SPIRAEA JAPONICA 'LITTLE PRINCESS'	LITTLE PRINCESS SPIRAEA	24" HT B&B			
44	VO	VIBURNUM OPULUS 'COMPACTUM'	COMPACT EUROPEAN CRANBERRY BUSH	24" HT B&B			
60	EC	EUONYMUS ALATUS 'COMPACTUM'	DWARF BURING BUSH	24" HT B&B			
36	VA	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	24" HT B&B			
42	JC	JUNIPERUS C. 'SEAGREEN'	SEA GREEN JUNIPER	24" HT B&B			
5	MP	MALUS 'PRAIRIEFIRE'	PRAIRIEFIRE CRABAPPLE	2" CAL B&B			
7	MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE	2" CAL B&B			
15	TG	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2-1/2" CAL B&B			
4	UM	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE AMERICAN ELM	2-1/2" CAL B&B			
10	LS	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	2-1/2" CAL B&B			
12	PS	PINUS STROBUS	EASTERN WHITE PINE	6'HT.			
8	PG	PICEA GLAUCA	WHITE SPRUCE	6'HT.			
20	НН	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILLY	#1 POT			
11	MA	THUJLA OCCIDENTALIS 'TECHNY'	MISSION ARBORVITAE	5'HT. B&B			

#### **GENERAL NOTES**

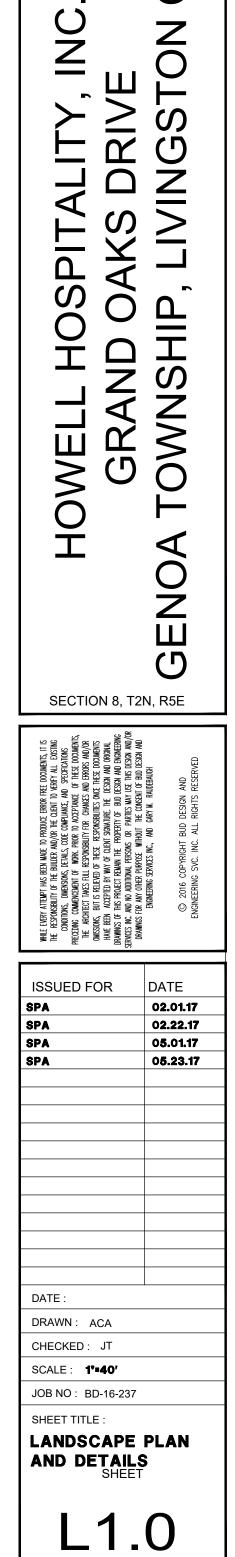
- 1. CONTRACTOR TO PROVIDE DESIGN AND INSTALLATION OF UNDERGROUND IRRIGATION SYSTEM IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND REGULATORY AGENCY REQUIREMENTS. ALL LANDSCAPING AND GRASS AREAS TO BE IRRIGATED. IRRIGATION CONTROL PANEL SHALL BE LOCATED WITHIN THE BUILDING AT DESIGNATED LOCATION.
- 2. ALL GREEN SPACES AND PLANTING AREAS SHALL BE IRRIGATED. CONTRACTOR SHALL SUPPLY IRRIGATION DESIGN PLAN TO ENGINEER AS SUBMITTAL PRIOR TO CONSTRUCTION.
- 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL PERMITS AND POST ALL BONDS PRIOR TO CONSTRUCTION.
- 4. REFER TO PLUMBING PLANS FOR LOCATION OF IRRIGATION METER.
- 5. ALL GRASS AREAS TO BE HYDRO-SEEDED.
- SEED MIX 30% PERENNIAL RYEGRASS
- 20% PARK KENTUCKY BLUEGRASS 45% CREEPING RED FESCUE
- 5% ANNUAL RYEGRASS
- SEEDING RATE: 4#/1000 S.F.
- 6. SPACE ALL SHRUBS AT 5-FEET ON CENTER UNLESS OTHERWISE
- INDICATED ON THE PLANS
- 7. ALL DISTURBED LAWN AREAS SHALL BE RESTORED TO AT LEAST PREVIOUS CONDITION IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- 8. THE LANDSCAPE CONTRACTOR SHALL INCLUDE TOPSOIL IN BASE BID. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE AMOUNT OF TOPSOIL AVAILABLE ON-SITE.

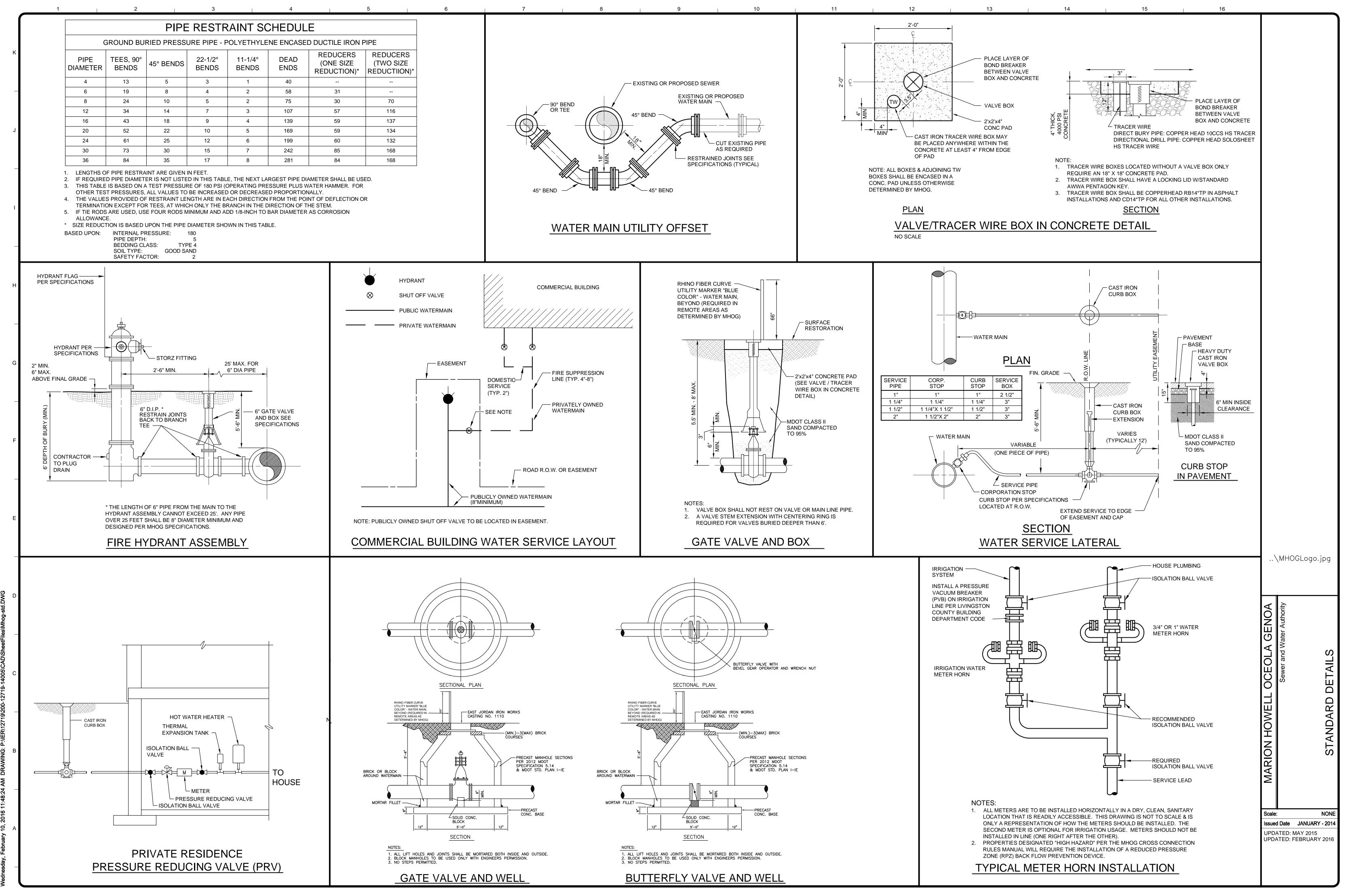


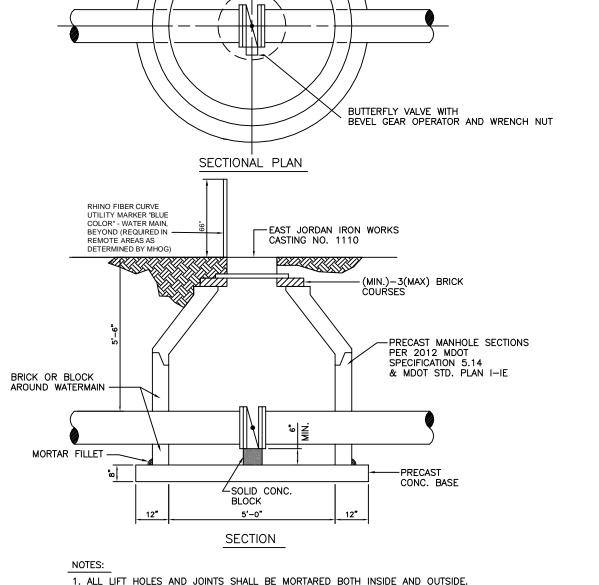
Bud Design & Engineering Services, Inc Architecture | Engineering | Interior Design 10775 S. Saginaw St. Suite B Grand Blanc, MI 48439 (PH) 810 695 0793 (FAX) 810.695.0569

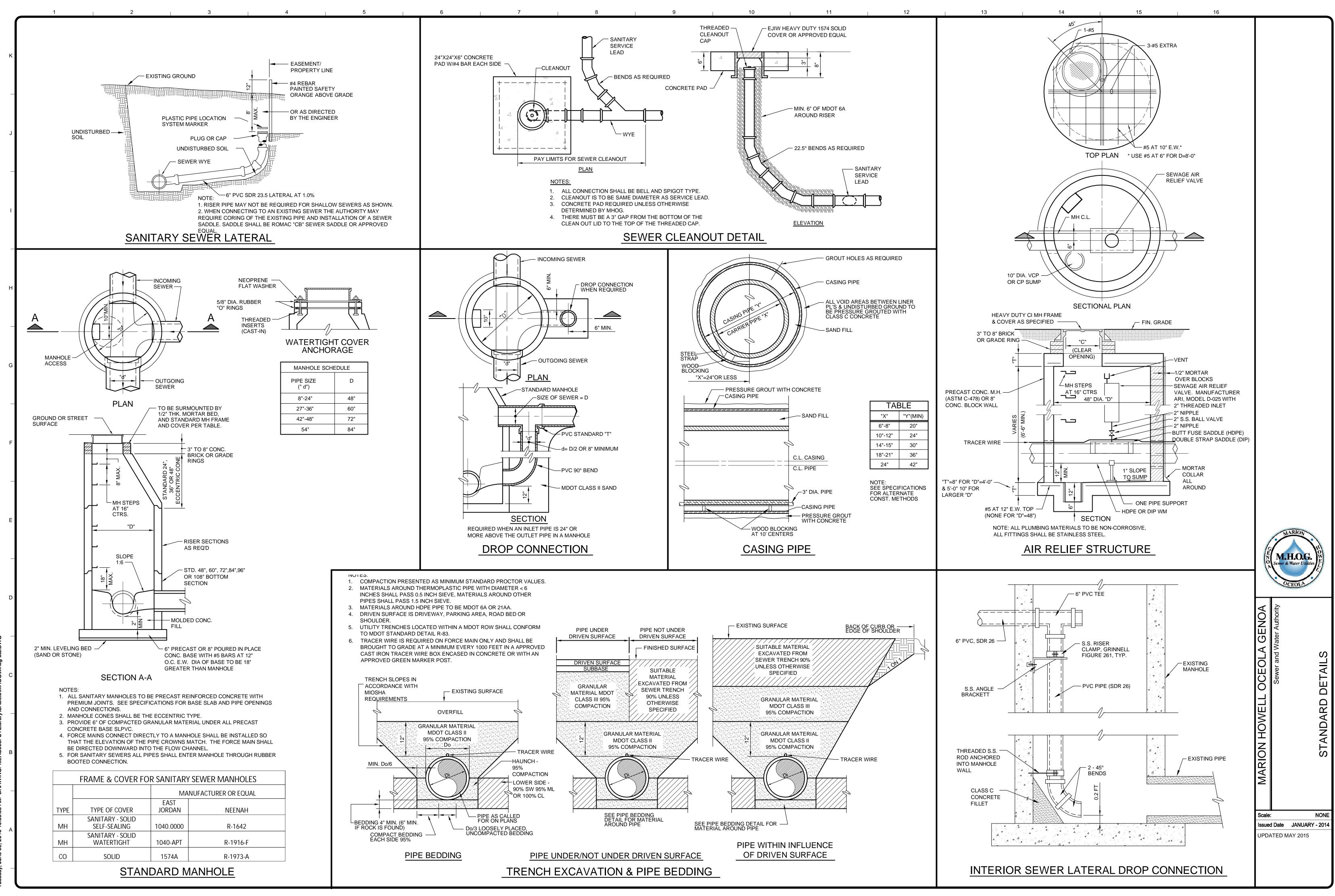
Web: www.buddesign.com

\_  $\geq$ 

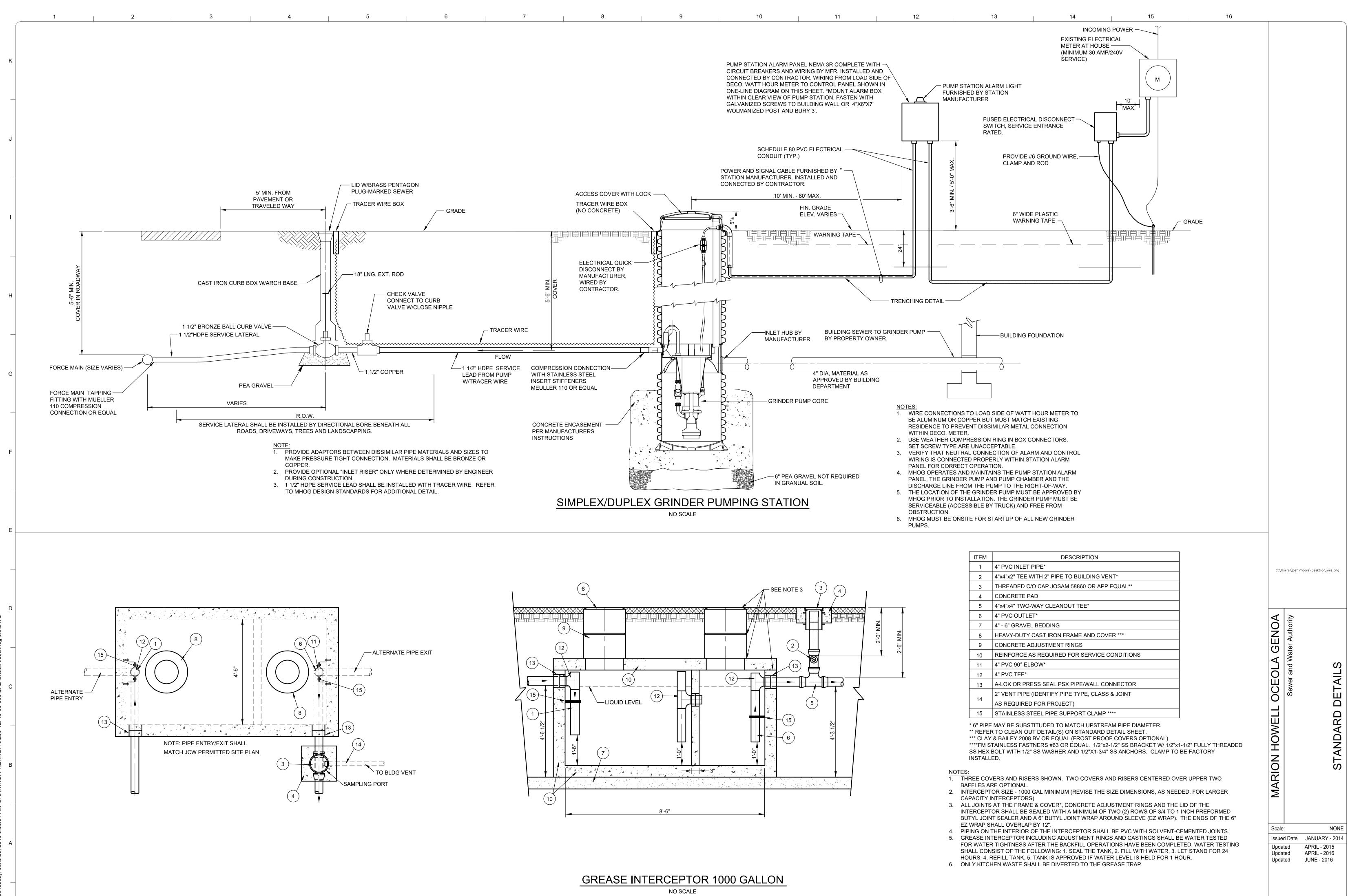








lay, June 09, 2015 10:58:59 AM DRAWING: \\IERS008FS1\Library\CADLib\MHOG\Mh





This application **must** be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: Schonsheck, Inc. 50555 Pontiac Trail Wixom, MI 48393 Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

OWNER NAME & ADDRESS: Korich, Inc.

SITE ADDRESS: 5665 Sterling Drive

OWNER PHONE: (517) 375-2415 EMAIL; steve@afwood.com

\_\_\_\_\_PARCEL #(s):\_\_4711-15-200-014

Location and brief description of site and surroundings:

Zoned Industrial, Located at the end of Sterling Drive and surrounded by other industrial uses

Proposed Use:

Warehouse for storage of unfinished materials

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

The building addition is an expansion of an existing Industrial (IND) use that has been in Genoa Township and in operation since 1999.

b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

As stated above, the building addition is an expansion of an existing Industrial (IND) use that has been in operation since 1999. The building addition will be similar to the existing architectural materials, colors and features.

c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

The building addition will be serviced by existing on-site public utilities.

A fire protection system will be added to the existing building as needed to provide adequate protection of it and the new addition in the event of a fire.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

The addition of warehouse space will not impact the natural environment, public health, safety, or welfare

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

The use (IND) does not impact section 3.03.02 & 7.02.02.

The proposed use is in compliance with PERMITTED AND SPECIAL LAND USES section 8.02.02

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED Korich, Inc. STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: Stown Konte

Steve Korte

ADDRESS: 5665 Sterling Drive, Howell MI 48843

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

Craig Zokas Name of\_Schonsheck, Inc. Business Affiliation at\_craig@schonsheck.com Email

### FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:	= 7.6	DATE: 5-3-17	
PRINT NAME: Craig Zokas	PH	IONE:248-669-8800	



## GENOA CHARTER TOWNSHIP Application for Site Plan Review

#### TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Schonsheck, Inc. 50555 Pontiac Trail, Wixom, MI 48393 If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Korich, Inc.

SITE ADDRESS: 5665 Sterling Drive PARCEL #(s): 4711-15-200-014

APPLICANT PHONE: (248) 669-8800 OWNER PHONE: (517) 375-2415

OWNER EMAIL: \_\_\_\_\_\_steve@afwood.com

LOCATION AND BRIEF DESCRIPTION OF SITE:

Zoned Industrial, located at the end of Sterling Drive and surrounded by Industrial uses.

BRIEF STATEMENT OF PROPOSED USE:

Warehouse for storage of unfinished materials

THE FOLLOWING BUILDINGS ARE PROPOSED: \_\_\_\_\_

One (1) 30,000 SF Building Addition

#### I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY:

Craig Zokas - President

ADDRESS: Schonsheck, Inc. 50555 Pontiac Trail, Wixom, MI 48393

Contact Information - Review Letters and Correspondence shall be forwarded to the following:					
1.) Craig Zokas	of Schonsheck, Inc.	at craig@schonsheck.com			
Name	Business Affiliation	E-mail Address			

FEE EXCEEDANCE AGREEMENT						
As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.						
SIGNATURE Job	DATE: 5-3-17					
PRINT NAME: Craig Zokas	PHONE:248-669-8800					
ADDRESS: Schonsheck, Inc. 50555 Pontiac Trail	Wixom, MI 48393					

#### **AUTHORIZATION OF REPRESENTATION**

To Whom It May Concern:

Please accept this letter as my authorization for SCHONSHECK, INC. to act as my representative regarding matters pertaining to my Proposed Office/Warehouse for A&F Wood Products in Howell, Michigan.

As my representative, SCHONSHECK, INC., a Michigan corporation, is hereby authorized to execute any and all documents necessary on behalf of said company.

Delen Strick

Date: <u>5-1-17</u>

Mr. Steve Korte Korich, Inc. 5665 Sterling Drive Howell, MI 48843



Planning Commission Genoa Township 2911 Dorr Road Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP
	Planning Director and Assistant Township Manager
Subject:	A&F Wood Products – Special Land Use and Site Plan Review #2
Location:	5665 Sterling Drive – terminus of Sterling Drive, west of Dorr Road
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the site plan (dated 5/24/17) proposing an addition to the existing industrial building at 5665 Sterling Drive. The site is located at the terminus of Sterling Drive and backs up to I-96.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

#### A. Summary

- 1. The project is generally consistent with the special use standards of Section 19.03; however, the applicant must address any issues raised by the Township Engineer or Fire Department.
- 2. The Planning Commission has approval authority over the building elevations, including materials and colors.
- 3. The amount of metal siding exceeds that allowed by Ordinance; however, the Commission has discretion to waive/modify this requirement when a proposed addition matches the existing building.
- 4. The applicant requests that the Planning Commission waive the landscaping requirements given the presence of existing vegetation and the nature of surrounding land uses.

#### B. Proposal

The applicant requests site plan review and approval of a 30,000-square foot addition to the existing industrial building (36,032 square feet), as well as a redesigned parking lot and other typical site plan elements (landscaping, lighting, waste receptacle).

The proposed building addition is intended for warehousing/storage, which is permitted by right in the IND; however, given that the total building area proposed (66,032 square feet) exceeds 40,000 square feet, special land use approval is required.

Procedurally, the Planning Commission is to make a recommendation to the Township Board on the special land use, site plan and impact assessment following a public hearing. The Board then has final approval authority over the project.

Genoa Township Planning Commission A&F Wood Products Site Plan Review #2 Page 2



Aerial view of site and surroundings (looking north)

#### C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the review criteria for Special Land Use applications as follows:

1. Master Plan. The Township Master Plan and Future Land Use map identify the site as Industrial, which is intended for "industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material."

Both the location and nature of the site as a developed light industrial property are consistent with this category and description.

**2.** Compatibility. Surrounding uses are developed with and/or zoned and planned for industrial uses and activities. The rear of the site also abuts I-96.

So long as existing and/or proposed buffering along I-96 meets current standards, the project is generally expected to be compatible with its surroundings.

- **3. Public Facilities and Services.** Given the fact that the site is already developed in an area planned for industrial uses, we do not anticipate issues with the capacity of public facilities and services. However, we defer to the Township Engineer and Fire Department for any specific comments/concerns they may have.
- **4. Impacts.** As an already developed industrial site, adverse impacts upon the natural environment are not anticipated.
- **5.** Mitigation. The Township may deem mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposed project.

#### **D.** Site Plan Review

**1. Dimensional Requirements.** As shown in the table below, the proposal complies with the dimensional requirements of the IND.

	Lot	Size	Ν	Minimum Setbacks (feet)					
District	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking	Max. Height	Lot Coverage	
IND	1	150	85	25	40	20 front 10 side/rear	30' 2 stories	40% building 85% impervious	
Proposal	12.4	600	100	35 (N) 330 (S)	430	70 front 225 side/rear	30' 1 stories	11.7% building 53.9% impervious	

2. Building Materials and Design. The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. The applicant should be prepared to present a color rendering and material sample board at the upcoming Planning Commission meeting.

Materials include decorative block and metal siding. The front of the building includes several windows to improve the aesthetics at the entrance to the property.

The revised submittal includes material calculations demonstrating that the amount of metal siding exceeds the limitations of Section 12.01.03. More specifically, the Ordinance restricts the use of metal siding to no more than 25% of a wall face visible from a parking lot or roadway. The north, south and east elevations are all well in excess of 25%.

With that being said, the building elevations note that materials, design and colors will match the existing building. The Ordinance gives Planning Commission the discretion to modify these requirements under certain circumstances, such as when an addition is consistent with the existing building.

**3. Parking.** The site plan provides the 77 parking spaces required for this proposal, including 4 barrier-free spaces.

The parking spaces and drive aisles meet or exceed the dimensional standards of Section 14.06. A detail and note on Sheet C-2.0 show the use of looped (double striped) spaces, as required.

- **4. Pedestrian Circulation.** The site plan proposes concrete sidewalks connecting the parking lots to building entrances. As an industrial site, no public sidewalk is required along the road frontage.
- **5.** Vehicular Circulation. The site currently has access via Sterling Drive and no changes are proposed. Internal circulation includes a new drive south of the building that connects to the existing drive, thus providing a full loop around the building.

Drive aisles meet or exceed Ordinance standards and a truck turning template is shown on Sheet C-3.0 demonstrating that large trucks with trailers can adequately navigate.

Additionally, there are two areas identified for emergency vehicle access. We defer to the Fire Department as to whether this design satisfies their requirements.

6. Loading. The site plan includes 4 loading docks for loading/unloading of large deliveries on the west side of the building and provides ample space for smaller vehicles with short-term deliveries near building entrances.

7. Landscaping. We have reviewed the landscape plan based on the standards of Section 12.02:

Location	Requirements	Proposed
Buffer zone "B"	20' width	200'
(along I-96)	6' wall or berm	Existing vegetation
	21 canopy trees	
	21 evergreen trees	
	84 shrubs	
Parking lot	8 canopy trees	None
	770 SF landscaped area	
Detention pond	6 trees	None
	60 shrubs	

As part of this revised submittal, the applicant requests that the existing vegetation be allowed in lieu of new/additional plantings. Section 12.02.13 allows the Planning Commission to waive or modify landscaping requirements under certain circumstances (including the presence of existing vegetation and the nature of surrounding land uses).

- 8. Waste Receptacle and Enclosure. The project includes a new waste receptacle and enclosure south of the existing building. The revised submittal includes details demonstrating compliance with the base pad and enclosure requirements of the Zoning Ordinance.
- **9.** Exterior Lighting. The lighting plan proposes 2 new pole mounted fixtures and 4 new wall mounted fixtures. Details note the use of LED fixtures that are downward directed/shielded, per Ordinance standards.

Lighting intensities and fixture heights also comply with current standards.

- **10. Signage.** The site plan shows the existing ground sign near the entrance to the site from Sterling Drive, but does not identify any new signage proposed as part of this project.
- **11. Impact Assessment.** The submittal includes an Impact Assessment (dated May 1, 2017). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at <u>borden@lslplanning.com</u>.

Respectfully, LSL PLANNING, A SAFEBUILT COMPANY

Brian V. Borden, AICP Planning Manager



June 5, 2017

Ms. Kelly Van Marter Genoa Township 2911 Dorr Road Brighton, MI 48116

#### Re: A&F Wood Products Addition Site Plan Review #2

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the revised plans, dated May 24, 2017, submitted by Schonsheck, Inc. for the referenced project. The applicant is proposing a 30,000 square foot building addition to the existing 36,000 square foot manufacturing, warehouse, and office space. The site is located on the west end of Sterling Road off of Grand River Avenue.

All outstanding items from our May 17, 2017, engineering review letter have been addressed in this submittal. A decision from the Brighton Area Fire Authority will be required for the construction plan review phase so that appropriate water main size and configuration, per the fire flow chart previously supplied, can be confirmed.

Please call if you have any questions.

Sincerely,

Gary J. Markstrom, P.E. Unit Vice President

copy: Craig Zokas, President, Schonsheck, Inc.

Marguerite K. Davenport

Marguérite K. Davenport Project Engineer

**BRIGHTON AREA FIRE AUTHORITY** 



615 W. Grand River Ave. Brighton, MI 48116 o: 810-229-6640 f: 810-229-1619

May 31, 2017

Kelly VanMarter Genoa Township 2911 Dorr Road Brighton, MI 48116

RE: A & F Wood Products Addition 5665 Sterling Drive Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on May 24, 2017 and the drawings are dated May 2, 2017 with latest revisions dated May 24, 2017. The project is based on an existing 36,032 square foot wood working/ storage facility that will undergo site improvement including a 30,00 square foot addition. The plan review is based on the requirements of the International Fire Code (IFC) 2015edition.

- The water main extensions are located on the submittal, however the the system will be modeled by the MHOG Water Authority to ensure that fire flow requirement can be met. Depending upon the results of the model, the water main extension may be required to be looped around the building. If looping is required, an additional hydrant will be required along the western curb line to meet proper spacing. (Based upon the modeled flow data provided through Tetra-Tech, the only option that will not be considered acceptable would be 8" dead-end mains for the on-site hydrants; all others meet the flow needed for fire flow as well as estimated sprinkler system demand).
- 2. The building shall be provided with an automatic sprinkler system in accordance with NFPA 13, Standard for the Installation of Automatic Sprinkler Systems. (Noted to be provided)

IFC 903

A. The FDC shall be reflected on future submittals and must be located on the front of the new addition in an approved location. It shall be located within 100' of the new East hydrant. (FDC is now shown on the front of the building)

IFC 912.2

- B. The location, size, gate valve, and connection of the fire protection lead shall be indicated on the utility site plan. (Size of the Fire Protection lead is indicated)
- 3. The building shall include the building address on the building. The address shall be a <u>minimum of 6"</u> high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. Existing address will be evaluated to determine if this is necessary. (Noted to be provided on the building visible from the road) IFC 505.1
- 4. The access road around the north side of the building shall be marked as fire lane on both sides. The southern access road must be marked on the building side as a fire lane. Signage shall be spaced every 50'. Include the location of the proposed fire lane signage and



May 31, 2017 Page 2 A & F Wood Products Addition 5665 Sterling Drive Site Plan Review

include a detail of the fire lane sign in the submittal. Access roads to site shall be provided and maintained during construction. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds. (Locations and detail of signs is provided in the submittal. Additional signage is required along the west curb edge near new parking area).

> IFC D 103.6 IFC D 103.1 IFC D 102.1 IFC D 103.3

5. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the main entrance door of the structure. (A building mounted Knox Box is required to be located at the main entrance of the building with the location to be coordinated with the fire department. The box is not shown, however a detail is provided. C-3.0 indicates a note at the access gate referencing a knox box. This box is to be replaced with a Knox Padlock as described in Item #6 below.

IFC 506.1

- 6. Secondary access road from Gray road must be provided with a gate at Gray Rd. and secured with a Knox Padlock. The secondary access shall be a minimum width of 20' and be capable of supporting 75,000 lbs emergency vehicles. The access road shall be maintained accessible in all climate conditions including snow. The curb shall be a transition curb from the secondary access to the rear lot. (Detail for Knox Padlock is provided; however there is a Knox Box noted at the access road gate that is to be replaced with a Knox Padlock).
- 7. Emergency vehicle access to south hydrant is approved and must be provided with No Parking Fire Lane Signage. (Fire Lane signage is shown at this location)
- 8. Fire department access doors are required every 100 lineal feet along the perimeter of the new addition high piled storage area. (Doors are indicated on architectural and site plan drawings).

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Capt. Rick Boisvert, CFPS Fire Inspector



2911 Dorr Road

Current REU's:

## MEMORANDUM

Brighton, MI 48116 810.227.5225	TO:	Craig Zokas, Schonsheck, Inc.		
810.227.3420 fax genoa.org	FROM:	er/Community		
	DATE:	June 5, 2017		
	RE:	A&F Wood Products Addition		
		will describe the connection fees required for the prop /storage addition to the existing A & F Wood Products I ve.		
		ty (15-200-028) was assessed 9 REU's in the Dorr Road e current building calculates at 2 REU's as shown below		
	-	t. Warehouse/Storage (.05 REU per 1,000 sq.ft.): office (.14 REU per 1,000 sq.ft.):	1.65 REU .35 REU	

Using the REU table the addition would generate an additional 1.65 REU's for a combined total of 3.65 REU's. There would be 5.35 REU's remaining. (Shown below)

2.00 REU

Proposed 30,000 sq.ft. Warehouse/Storage (.05 REU per 1,000 sq.ft):	1.65 REU's
Total REU's required:	3.65 REU's
Previous REU's Assessed=	9.00 REU's
REU Credit:	(5.35 REU's)

No additional Tap Fees are due at this time.

SUPERVISOR

Bill Rogers

**CLERK** Paulette A. Skolarus

**TREASURER** Robin L. Hunt

TRUSTEES

Jean W. Ledford H. James Mortensen Terry Croft Diana Lowe

MANAGER Michael C. Archinal

# • Please note that Parcel reconfigurations should insure REU credits are allocated as needed.

#### IMPACT ASSESSMENT

.

#### A & F WOOD PRODUCTS

#### **SECTION 15, GENOA TOWNSHIP**

#### **PREPARED BY:**

Monument Engineering Group Associates, Inc. 638 S. Grand Ave. Fowlerville, Michigan 48836

#### **PREPARED FOR:**

Schonsheck, Inc. 50555 Pontiac Trail Wixom, Michigan 48393

May 1, 2017

#### IMPACT ASSESSMENT

### A. NAME(S) AND ADDRESS(ES) OF PERSON(S) RESPONSIBLE FOR PREPARATION OF THE STATEMENT.

Prepared by:

Prepared for:

Monument Engineering Group Associates, Inc.
638 S. Grand Ave.
Fowlerville, Michigan 48836

Schonsheck, Inc. 50555 Pontiac Trail Wixom, Michigan 48393

### **B. DESCRIPTION OF THE SITE, INCLUDING EXISTING STRUCTURES, MAN MADE FACILITIES AND NATURAL FEATURES ALL INCLUSIVE TO WITHIN 10' OF THE PROPERTY BOUNDARY.**

The site consists of 18.4 acres located at the south end of Gray Road and the west end of Sterling Drive. The site is bounded on the west side by I-96 Expressway. There is an existing 33,000 manufacturing / warehouse and 2,560 S.F. office facility. The company manufactures stores and distributes pocket door frames and commercial architectural flush doors. Approximately 75% of the building is storage and 25% manufacturing. The petitioner is proposing a building addition of 30,000 S.F. with a reconfiguration of the existing office space. Operations are to remain the same but expanded.

### C. A WRITTEN DESCRIPTION OF THE ENVIRONMENTAL CHARACTERISTICS OF THE SITE PRIOR TO DEVELOPMENT, I.E., TOPOGRAPHY, SOILS, VEGETATIVE COVER, DRAINAGE, STREAMS CREEKS OR PONDS.

The property is mostly open meadow with a small tree and brush stand located on the west side and a group of trees in the northeast corner. The elevation slopes from 994 at the Northeast end of the site to elevation 973 at the Northwest end of the site.

The United States Department of Agriculture "Soil Survey of Livingston County, Michigan" indicates the soil type to mainly be Miami Loam (MoB & MoC) with 2 to 12% slopes. This moderate to poorly draining soil is typically located on tills and moraines.

# D. DESCRIPTION OF SOIL EROSION CONTROL MEASURES DURING CONSTRUCTION.

Surface runoff during construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner, including silt fence, inlet filters, and seed and mulch. A

grading permit will have to be obtained from the Livingston County Drain Commissioner's office.

## E. DESCRIPTION OF PROPOSED USAGE AND OTHER MAN MADE FACILITIES; HOW IT CONFORMS TO EXISTING AND POTENTIAL DEVELOPMENT PATTERS. EFFECTS OF ADDED LIGHTING, NOISE OR AIR POLLUTION, ANY PROPOSED PHASING.

The property conforms to the current zoning of Industrial (IND). Industrial Zoning requires a 2 acre minimum unit size and 200 feet minimum frontage. The property is bordered on all sides by Industrial District Zoning, and will be consistent with adjacent uses.

The A & F Wood Products facility will have little effect on added lighting, noise or air pollution.

Pursuant to Article 9 of the Genoa Township Zoning Ordinance, the Principle use is permitted in the Industrial District under Paragraph "K," Manufacturing, Fabricating of Wood Materials.

# F. DESCRIPTION OF NUMBER OF EMPLOYEES, PATRONS AND THE IMPACT OF GENERAL SERVICES, I.E.: SCHOOLS, POLICE, FIRE.

A & F Wood Products Corporation employs 53 full time employees. The hours of operation are from 7:00 a.m. -3:30 p.m. Monday through Friday. Inbound freight is by truck (53') normally one (1) truck every day. Outbound freight is normally three (3) trucks per day five days a week.

In general terms, the project as a whole will generate jobs while creating minimal burden on public services such as schools, fire department, police department, etc.

# G. DESCRIPTION OF ANY HAZARDOUS MATERIALS USED, STORED OR DISPOSED OF ON SITE.

The project will be serviced by public sanitary sewer and water main already at the site. Storm water management will be in accordance with the Livingston County Drain Commission requirements for water quality and quantity.

# H. DESCRIPTION OF ANY HAZARDOUS MATERIALS USED, STORED OR DISPOSED OF ON SITE.

A & F Wood Products Corporation uses no hazardous materials for its operations.

## LEGAL DESCRIPTION (AS PROVIDED)

Parcel Tax Number: 4711-15-200-028

## PARCEL 1:

SEC 15 T2N R5E, COMM NE COR, TH N88\*19'39"W 1330.21 FT TH S01\*38'45"W 446.49 FT TO POB TH S01\*38'45"W 213.84 FT TH ON AN ARC OF A CURVE LEFT CHORD BEARING S74\*54'32"W 132.57 FT TH N88\*20'15"W 853.94 FT TH N38\*28'54"W 76.87 FT TH N51\*31'06"E 120 FT TH N38\*28'54"W 145.03 FT TH N13\*01'36"E 5.16 FT TH S88\*20'15"E 1031.13 FT TO POB CONT 5.66 AC.

Parcel Tax Number: 4711-15-200-029

#### PARCEL 2:

SEC 15 T2N R5E, COMM NE COR,TH N88\*19'39"W 1330.21 FT TH S01\*38'45"W 660.33 FT TH ON AN ARC OF A CURVE LEFT CHORD BEARING S74\*54'32"W 132.57 FT TO POB TH CONT ON ARC OF A CURVE LEFT CHORD BEARING S49\*59'52"W 65.31 FT TH S41\*50'09"W 96 FT TO CENTER OF A 75 FT RADIUS CUL-DE-SAC TH S37\*41'31"W 506.48 FT TH ON AN ARC OF A CURVE TO RIGHT CHORD BEARING N38\*59'18"W 119.75 FT TH N38\*28'54"W 569.72 FT TH S88\*20'15"E 853.94 FT TO POB CONT. 5.03 AC.

Parcel Tax **N**umber: 4711-15-200-030

### PARCEL 3:

SEC 15 T2N R5E, COMM NE COR, TH N88\*19'39"W 1330.21 FT TH S01\*38'45"W 1111.82 FT TH ON AN ARC OF A CURVE RIGHT CHORD BEARING N42\*44'12"W 765.94 FT TH N37\*41'31"E 506.48 FT TO CENTER OF A 75 FT RADIUS CUL-DE-SAC TH N41\*50'09"E 96 FT TH ON AN ARC OF A CURVE RIGHT CHORD BEARING N66\*44'50"E 193.76 FT TO POB CONT. 7.71 AC.

## BEARING REFERENCE

Bearings are based on Project Coordinate System: Michigan State Plane Coordinate System, NAD83 (Conus) (Mol) (GRS80), South Zone 2113, International Feet, Ground (Lat: 42-34-10, Lon: 83-50-25, Elev: 992, Scale Factor: 1.00005000).

## DESIGN ENGINEER

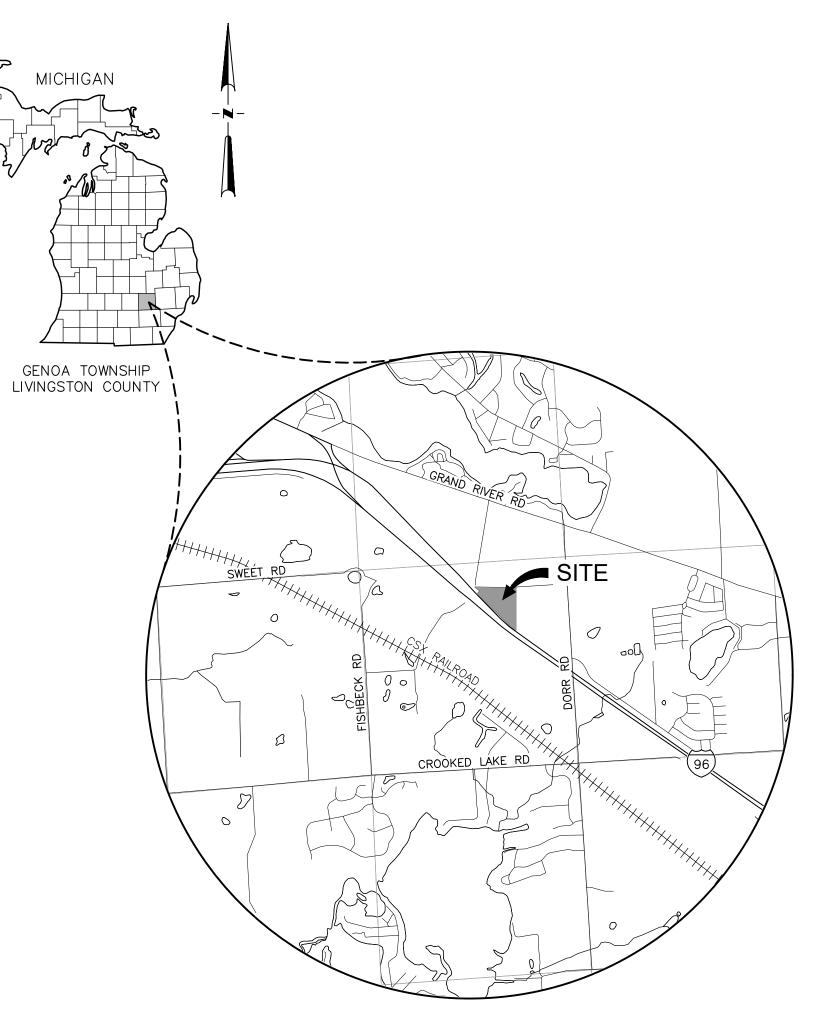


## MONUMENT ENGINEERING GROUP ASSOCIATES, INC

ENGINEERS - SURVEYORS - CONSULTANTS LANDSCAPE ARCHITECTS - LAND PLANNERS

> 638 S GRAND AVE., FOWLERVILLE, MI 48836 ALLAN W PRUSS, PE, PS PHONE: 517-223-3512





LOCATION MAP

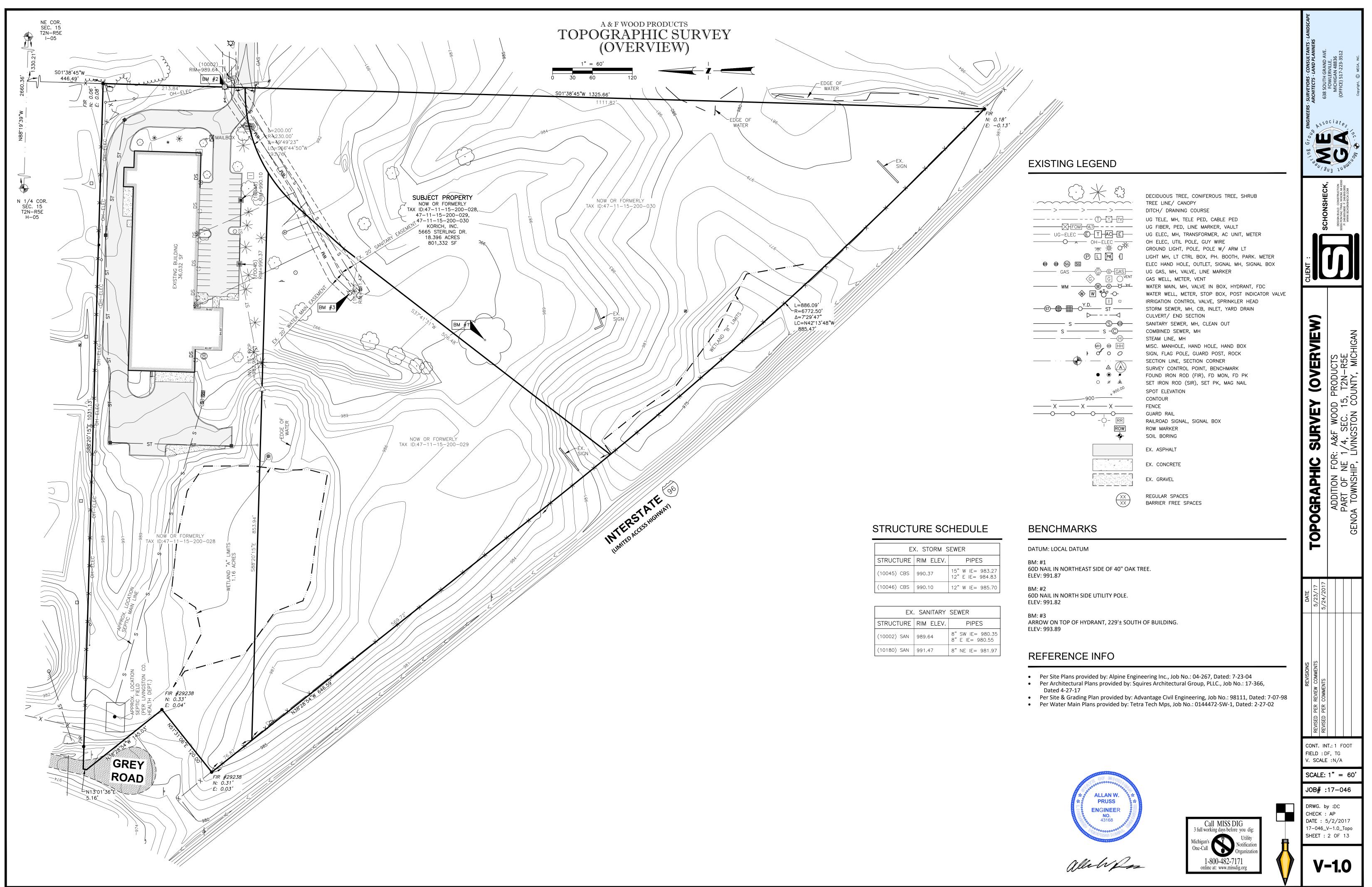
CLIENT

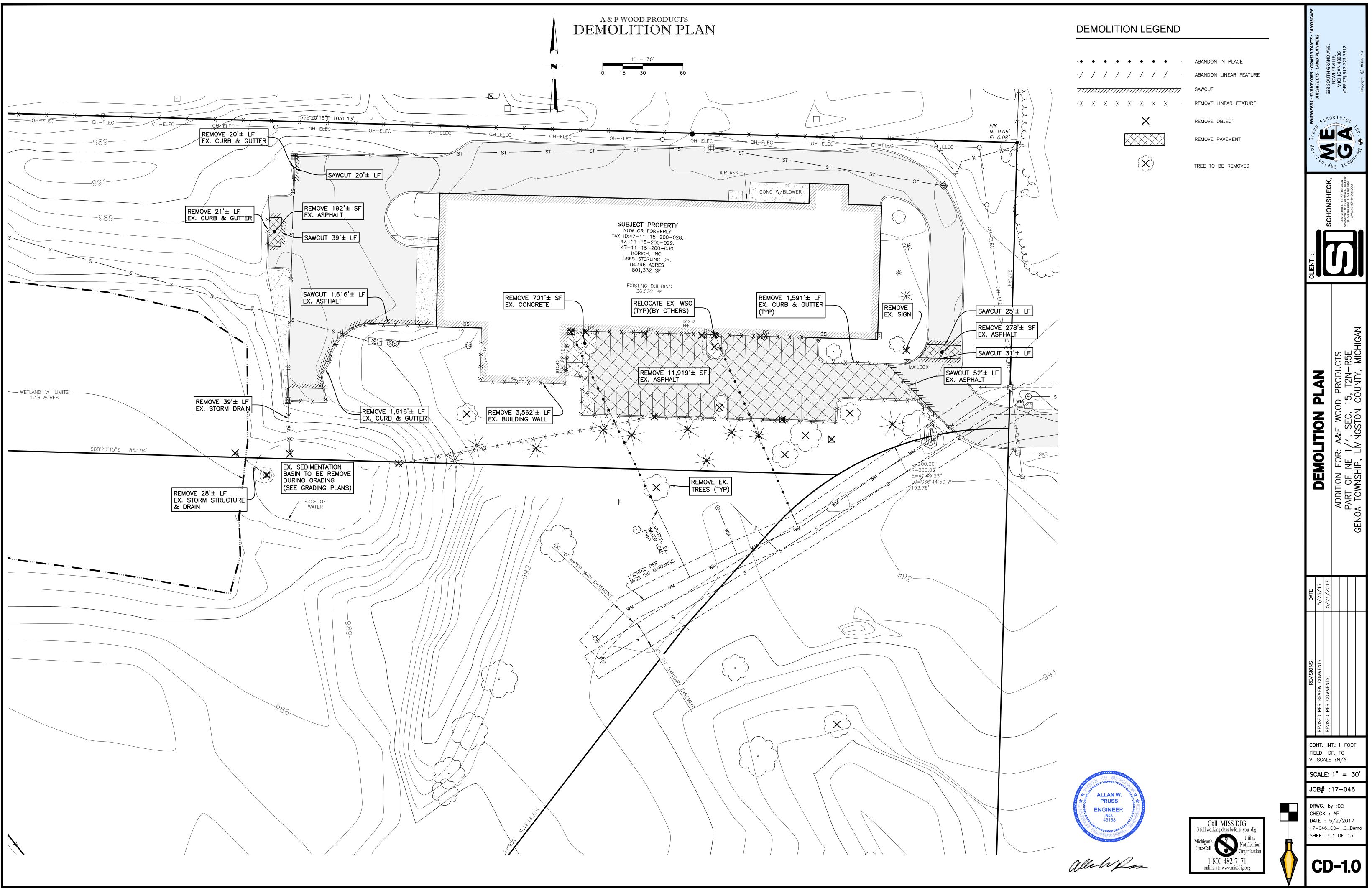


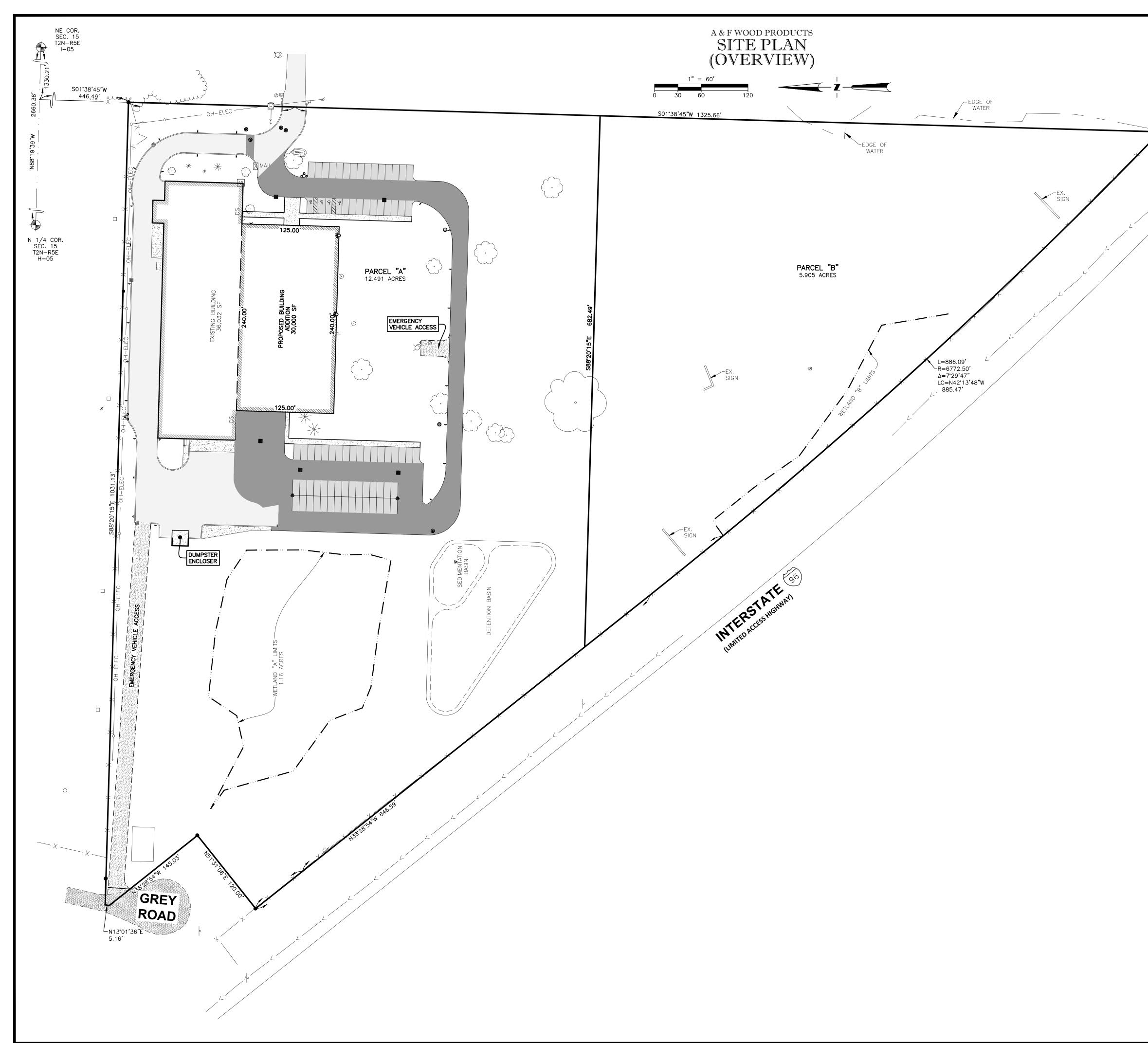
ARCHITEC

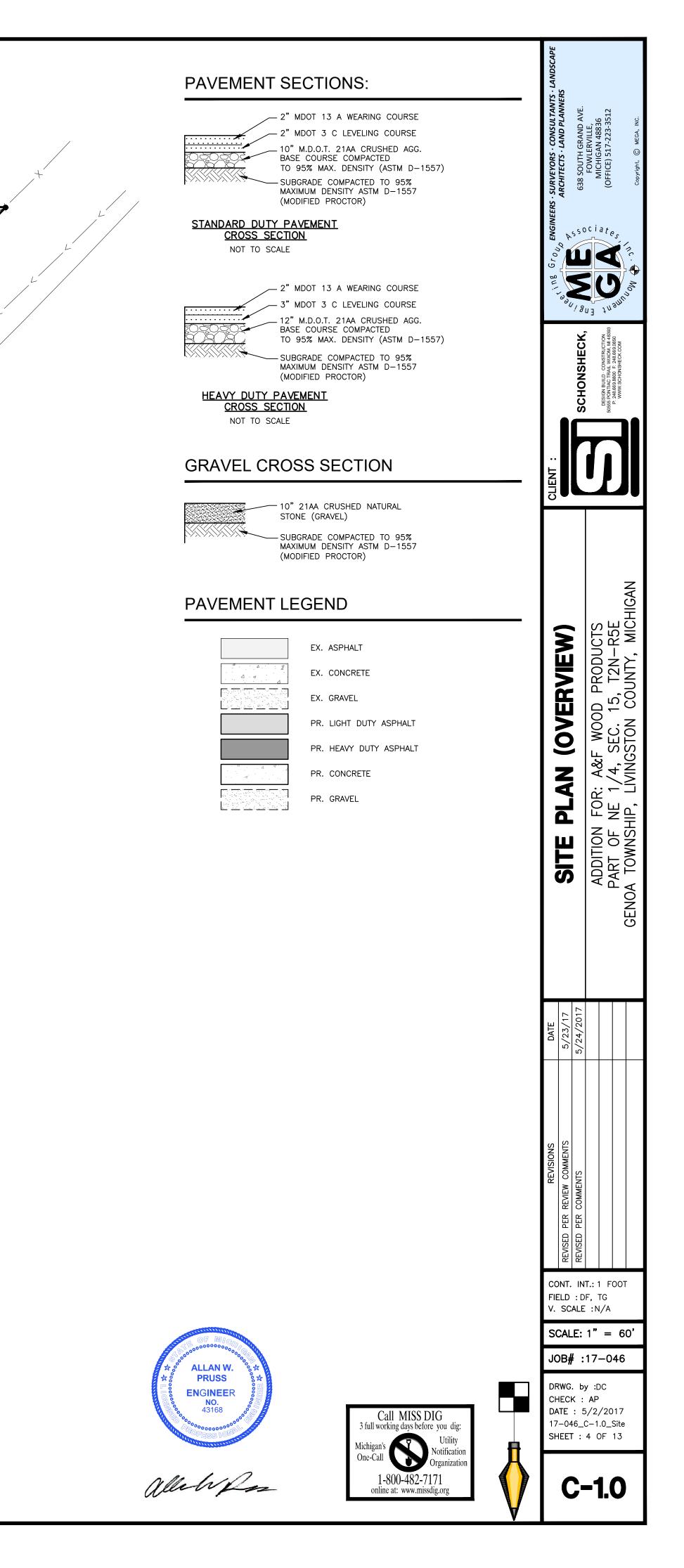


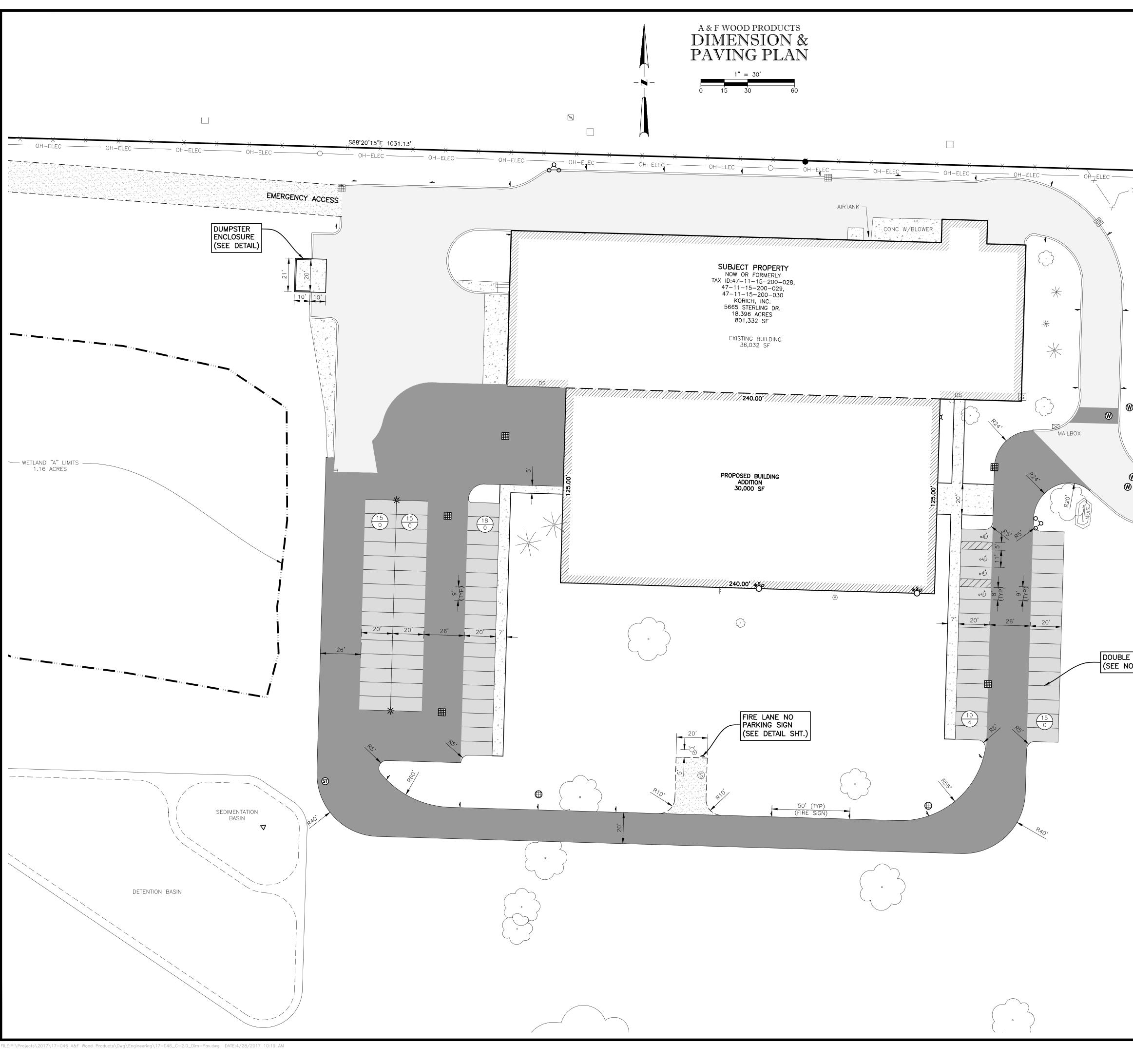
	Γ					NDSCAPE		
		SHEET INDEX	7   PRELIMINARY SITE PLAN SUBMITTAL	7 REVISED PER COMMENTS	N SUBMITTALS	, ing Grow, ENGINEERS · SURVEYORS · CONSULTANTS · LANDSCAPE	BY CHITECTS · LAND PLANNERS	
			5/2/2017	5/23/201	2/24/201	_	SCHONSHECK	DOTOONDIECCY, DESIGN BUILD: CONSTRUCTION BESIGN BUILD: CONSTRUCTION P. 248,658,8800 F. 248,659,0850 WWW SCHONSHECK COM
		GENERAL			INCLUDED SHEETS	-		50555 POID
	SHEET G-1.0	COVER SURVEY	•	•	•	_	ÎC	
	SHEET V-1.0	TOPOGRAPHIC SURVEY (OVERVIEW)	•	•	•	<b>.</b> .		
	SHEET CD-1.0	CIVIL DEMOLITION           DEMOLITION PLAN	•	•	•	CLIENT	JL	
	SHEET C-1.0	SITE PLAN SITE PLAN (OVERVIEW)		•	•	-		
	SHEET C-2.0	DIMENSION & PAVING PLAN	•	•	•			
	SHEET C-3.0	VEHICLE CIRCULATION	•	•	•	_		
	SHEET C-4.0	UTILITY PLAN				_		ICTS -R5E MICHIGAN
	SHEET C-4.0	GRADING	•	•		_		CHIC
	SHEET C-5.0	GRADING, SOIL EROSION & SEDIMENTATION CONTROL PLAN	•	•	•	_		
	SHEET C-6.0	DRAINAGE AREA & STORM WATER CALCULATION PLAN		•	•	_		
	SHEET C-6.1	DETENTION BASIN DETAILS DETAILS				-		
	SHEET C-7.0	DETAILS		•	•		r	
	SHEET C-7.1	DETAILS SPECIFICATIONS		•	•	-	COVER	
	SHEET C-8.0	SPECIFICATIONS		•	•		5	A&F 4, 0
	SHEET C-8.1	SPECIFICATIONS LANDSCAPING PLANS		•		(	J	L_ Z
	SHEET L-1.0 SHEET L-2.0	LANDSCAPE PLAN (BY OTHERS) LANDSCAPE DETAILS (BY OTHERS)	•	•	•	_		FOR: NE 1 L 1
	SHELL L-2.0	LIGHTING PLAN	•	•				NSI NSI
	SHEET LP-1.0	PHOTOMETRIC SITE PLAN (BY OTHERS) ARCHITECTURAL PLANS	•	•	•	_		TOW TOW
	SHEET AS-101	ARCHITECTURAL SITE PLAN (BY OTHERS)	•	•	•	_		A PA
	SHEET A-101	OVERALL FLOOR PLAN (BY OTHERS)	•	•	•	_		ADDITION FO PART OF NE GENOA TOWNSHIP,
	SHEET A-201	BUILDIGN ELEVATIONS (BY OTHERS)				-		
		GENOA TOWNSHIP, LIVINGSTON COUNTY STANDARD DET	AILS					
			ALLAN PRUS ENGINI NO. 4316			S DATE	S 5/23/17 5/24/2017	
		alle	-n		12	REVISIONS	REVIEW COMMENTS COMMENTS	
С	Т						REVISED PER REVISED PER CON	
	)UII	RES 223 W. Grand River Ave. Suite 2				FIE	NT. IN	NT.: 1 FOOT DF, TG E :N/A
		TIIRΔI Howell, MI 48843 517.518.8843	-					N/A
								:17-046
	JUP,	PLLC			1			by :DC
			<b>(</b> 3 full w Michigar	orking	MISS DIG days before you dig: Utility	CH DA 17	ECK : TE : 4 -046_	-
			One-Ca	u L-800	Notification Organization -482-7171 www.missdig.org		G	-1.0
_								

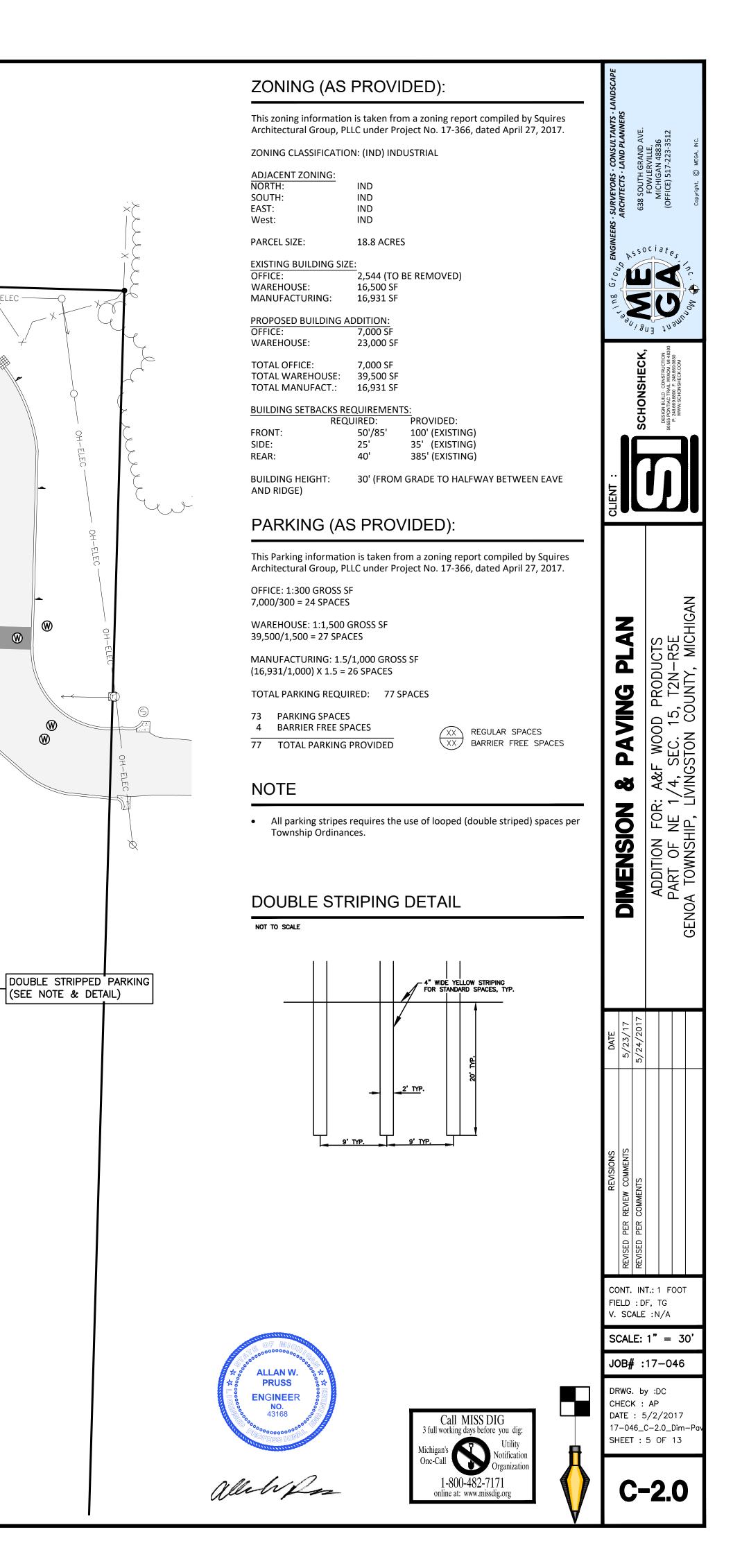




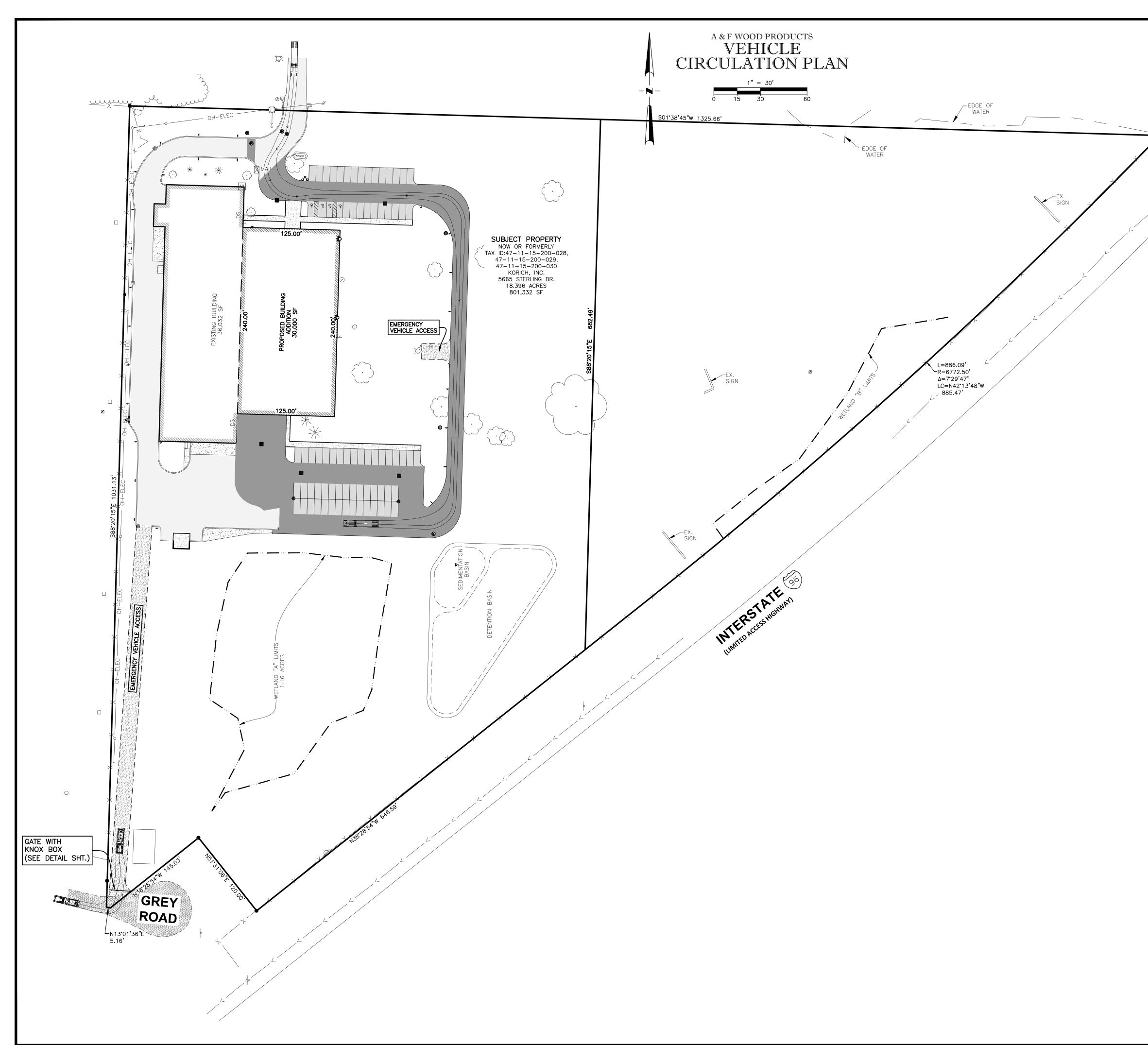


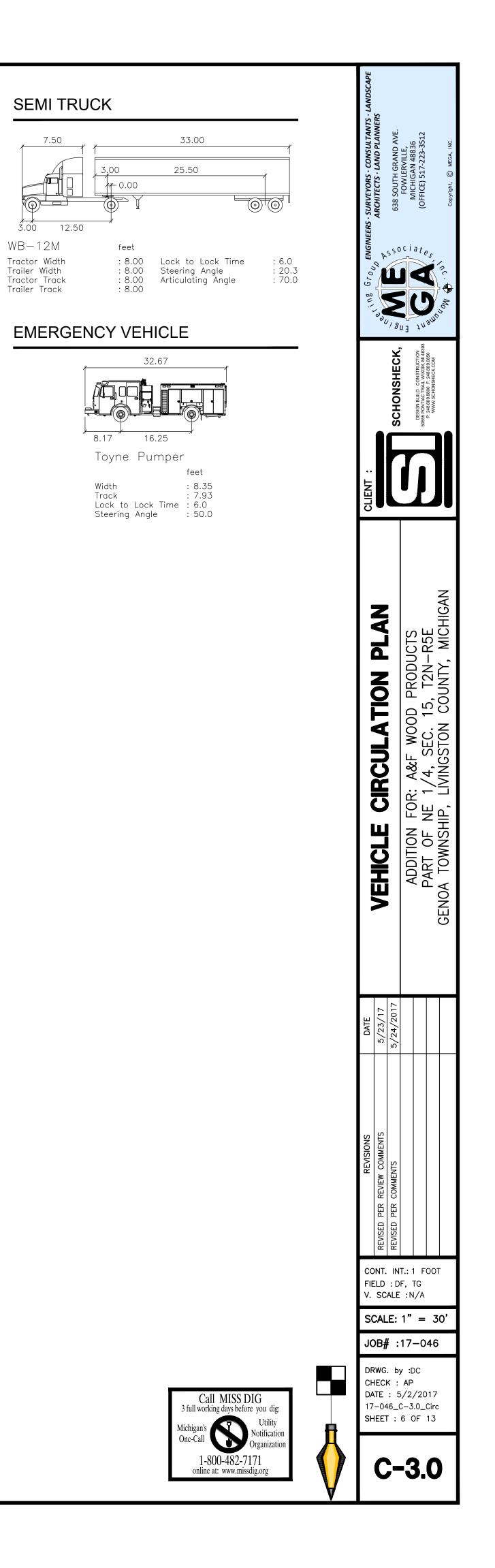




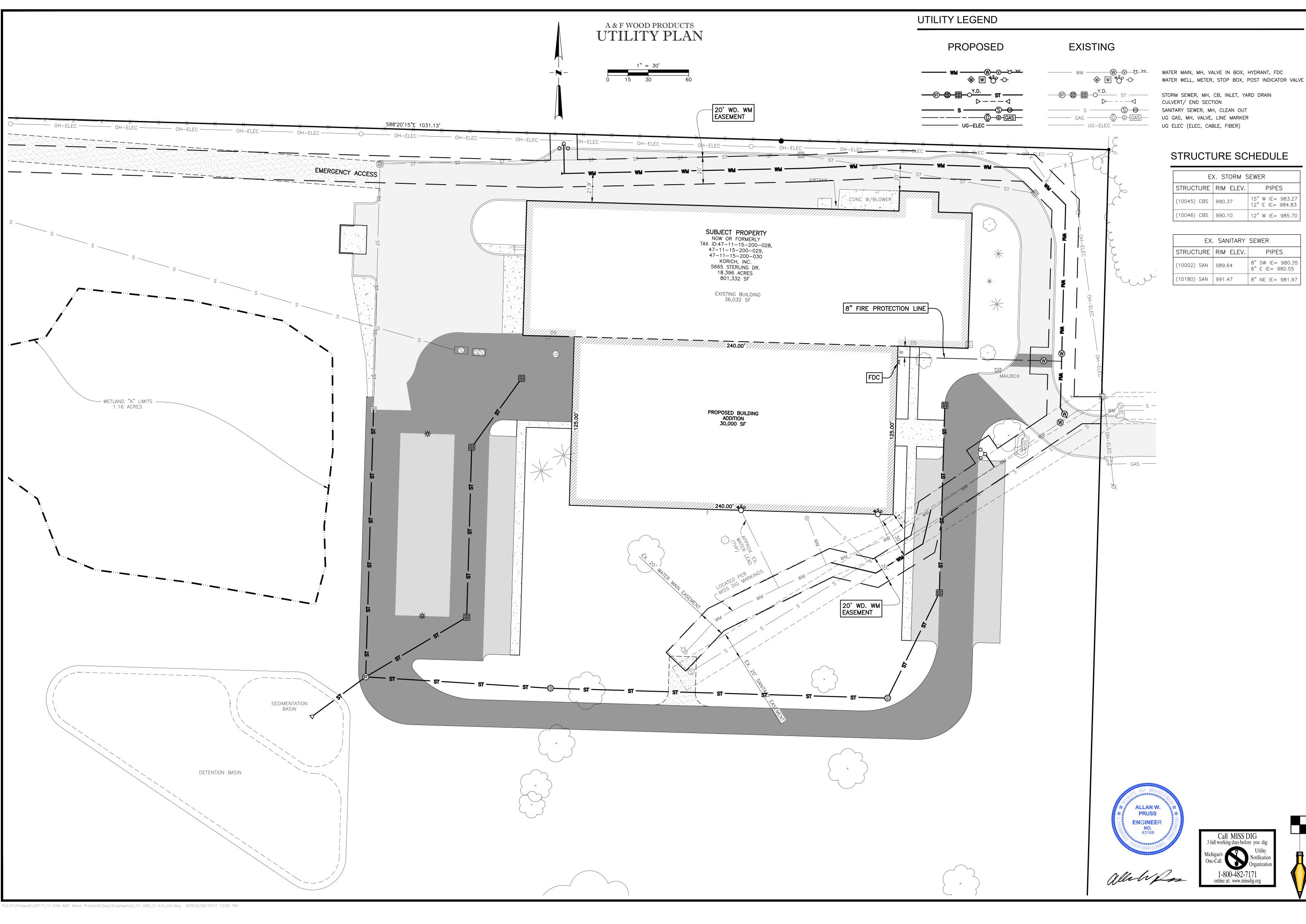


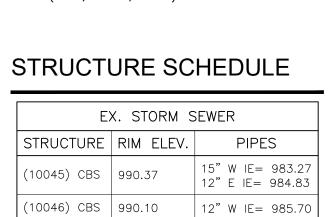
W





3.00

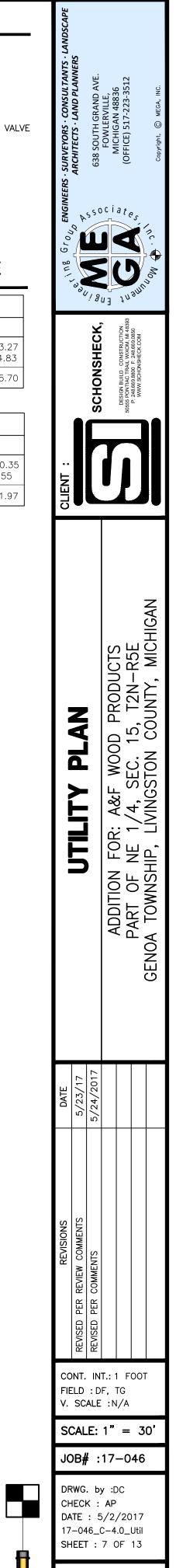




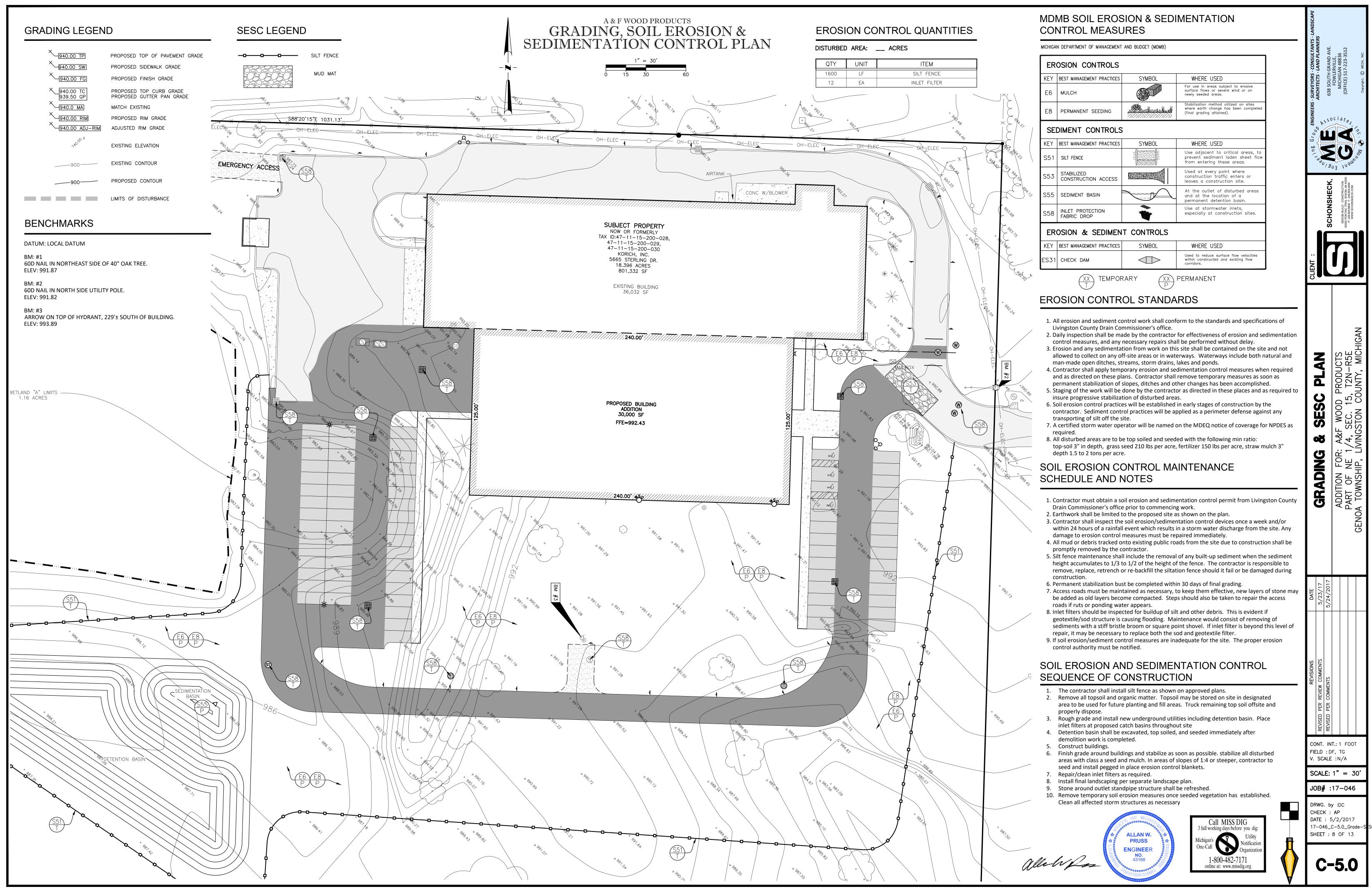
EX. SANITARY SEWER					
STRUCTURE	RIM ELEV.	PIPES			
(10002) SAN	989.64	8" SW IE= 980.35 8" E IE= 980.55			
(10180) SAN	991.47	8" NE IE= 981.97			

Call MISS DIG 3 full working days before you dig:

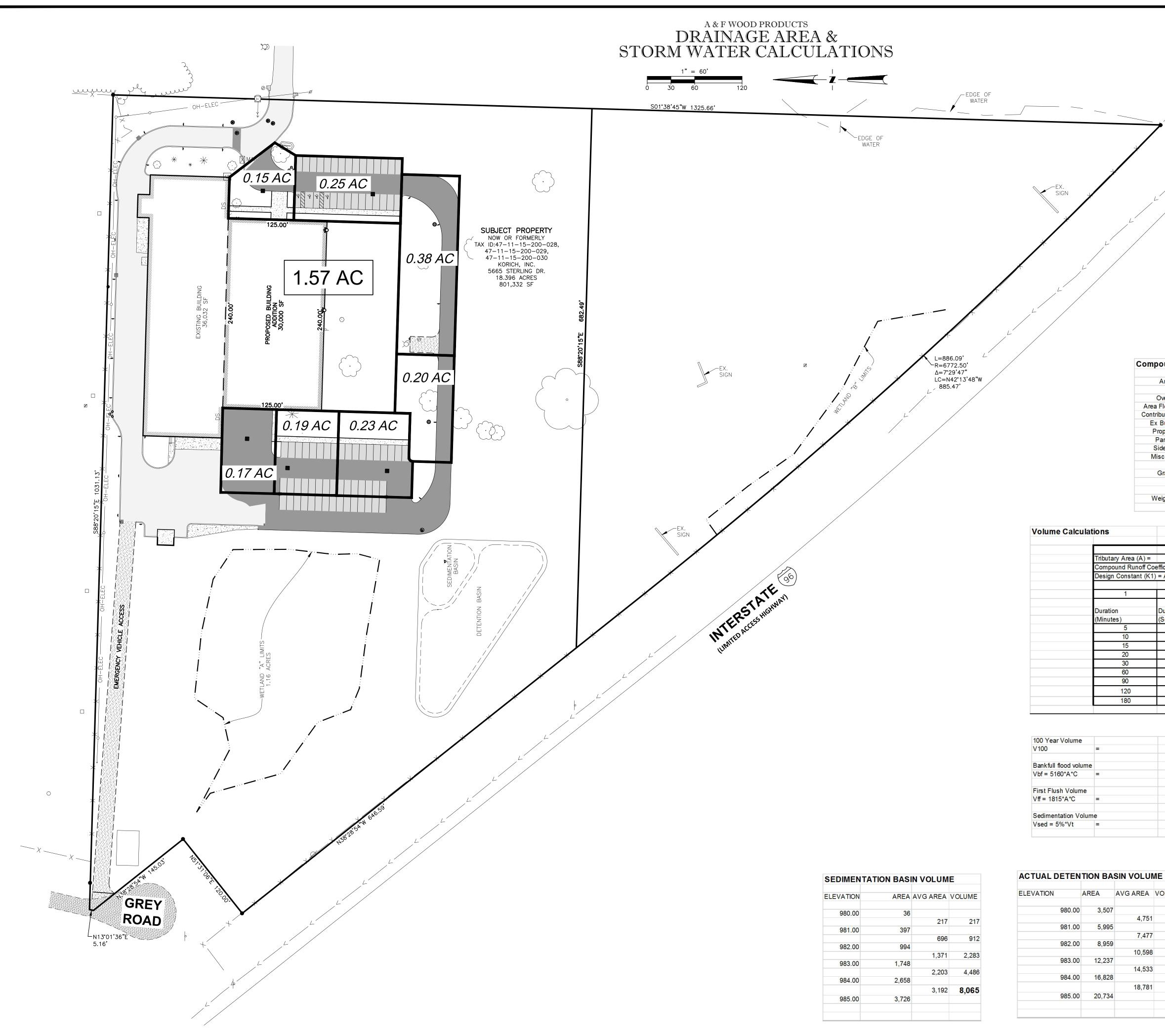
1-800-482-7171 online at: www.missdig.org



**C-4.0** 



FILE:P:\Projects\2017\17-046 A&F Wood Products\Dwg\Engineering\17-046\_C-5.0\_Grade-SESC.dwg DATE:4/28/2017 1:03 PM



100 Year Volume	
V100	=
Bankfull flood volume	
Vbf = 5160*A*C	=
First Flush Volume	
Vff = 1815*A*C	=
Sedimentation Volum	e
Vsed = 5%*Vt	=

ELEVATION	AREA	AVG AREA	VOLUME
980.00	3,507		
		4,751	4,751
981.00	5,995		
		7,477	12,228
982.00	8,959		
		10,598	22,826
983.00	12,237		
		14,533	37,359
984.00	16,828		
		18,781	56,527
985.00	20,734		

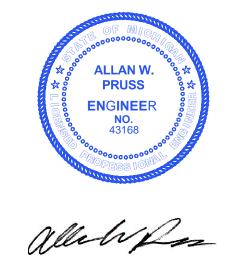
ELEVATION	AREA	AVG AREA	VOLUME
980.00	36		
000.00		217	217
981.00	397		
		696	912
982.00	994		
		1,371	2,283
983.00	1,748		
		2,203	4,486
984.00	2,658		
		3,192	8,065
985.00	3,726		

Site Info			
Tributary Area (A)	=	9.61	Acres
Allowable Discharge Rate (Qo)	=	0.2	cfs/a
Compound Runoff Coefficient (C)	=	0.53	

compound Runo	ff Coefficient (	C )				
Area						
	SF	AC	C			
Overall	544102.00	12.49				
Area Flowing off	125566.00	2.88				
Contributing Area	418536.00	9.61				
Ex Building	36032.00	0.83	0.90	32428.80		
Proposed	30000.00	0.69	0.90	27000.00		
Parking	99896.00	2.29	0.60	59937.60		
Sidewalk	3890.00	0.09	0.90	3501.00		
Misc Conc	0.00	0.00	0.90	0.00		
	169818.00	3.90				
Grass	248718.00	5.71	0.20	49743.60		
				172611.00		
Weighted	С	172611.00		0.41	Use	0.53
		418536.00				

		LIVINGSTON	COUNTY DETEN	TION METHOD	)		
a (A) =			9.61				
unoff Coe	efficient (C)	=	0.53				
ant (K1)	= A X C =		5.092	Allowable Outflo	ow Rate (Qo)	= .2 cfs per acre	1.922
	2	3	4	5	6	7	
		Intensity	Col. #2	Inflow Volume		Storage Volume	
	Duration	(100-yr Storm	x Col. #3	=Col.#4xK1	Col. #2 x Qo	Col. 5 - Col. 6	
	(Seconds)	(ln/Hr)	Inches	(Cu. Ft.)	(Cu. Ft.)	(Cu. Ft.)	
	300	9.17	2750	14004.05	576.50	13427.55	
	600	7.86	4714	24006.94	1152.99	22853.94	
	900	6.88	61 <mark>8</mark> 8	31509.10	1729.49	29779.61	
	1200	6.11	7333	37344.12	2305.98	35038.14	
	1800	5.00	9000	45831.42	3458.98	42372.45	
	3600	3.24	11647	59311.25	6917.95	52393.30	
	5400	2.39	12913	65758.13	10376.93	55381.20	
	7200	<mark>1.9</mark> 0	13655	69537.33	13835.90	55701	
	10800	1.34	14487.80	73777.41	20753.85	53023.56	

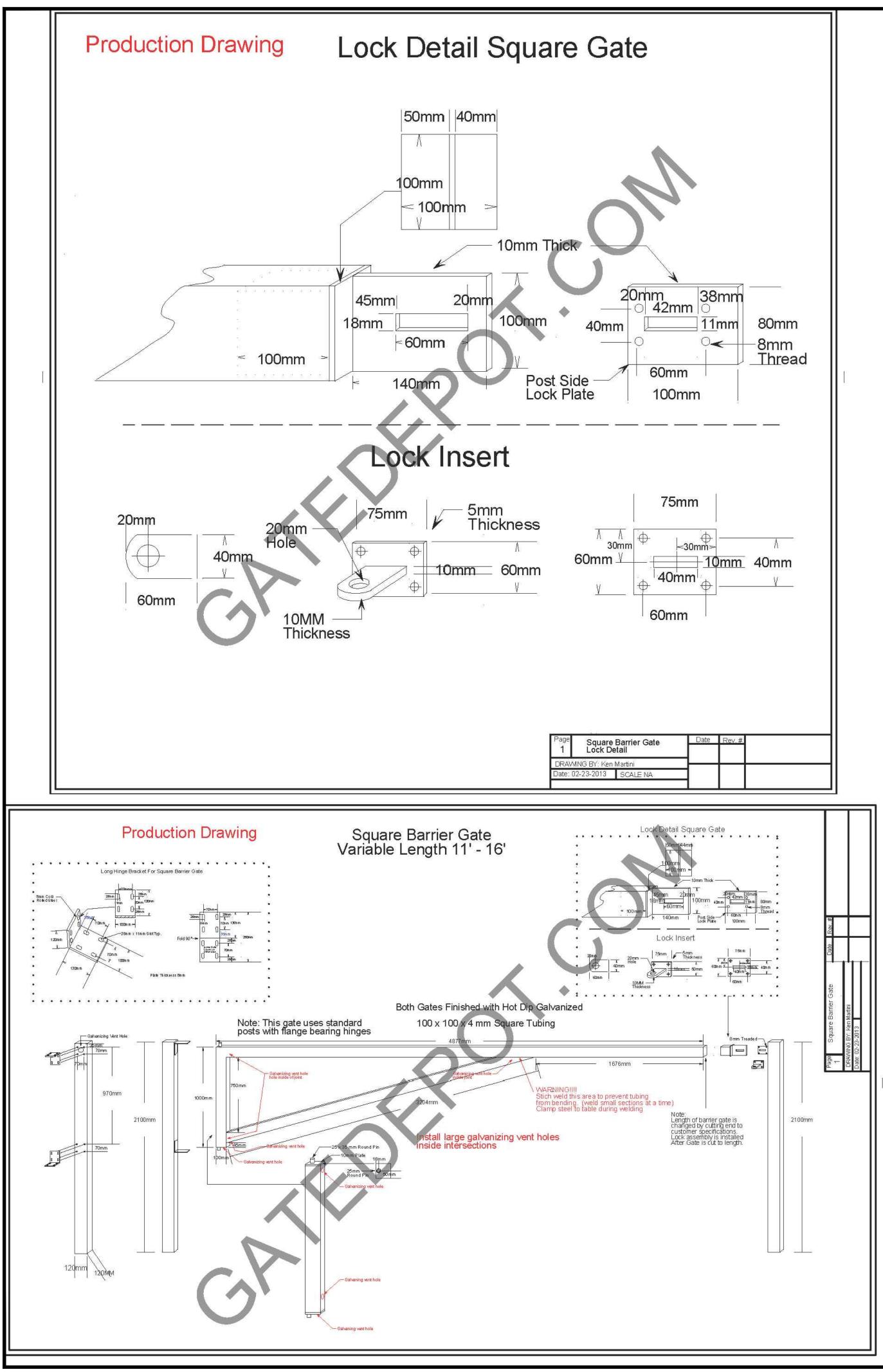
 55701
26277
9243
 2769





, γ n β G r <sub>0, ν</sub> ENGINEERS · SURVEYORS · CONSULTANTS · LANDSCAPE	Solution of ARCHITECTS · LAND PLANNERS	68 SOUTH GRAND AVE.			s s	000 🚡 · 50 Copyright, © MEGA, INC.
CLIENT :		SCHONSHECK.		DESIGN BUILD · CONSTRUCTION 50555 PONTIAC TRAIL WIXOM, MI 48393	P: 248.659.8800 F: 248.659.0850 WWW.SCHONSHECK.COM	
	I DRAINAGE AREA & STORM WATER CALS					GENOA IOWNSHIP, LIVINGSION COUNIY, MICHIGAN
DATE	5/23/17	5/24/2017				
REVISIONS	REVISED PER REVIEW COMMENTS	REVISED PER COMMENTS				
Fie V.	DNT. ELD SC.	: D ALE	:N	TG I/A	001	0'
JC	)B#	ŧ :	17	-0		
C⊢ DA 17	RWG IECI ATE -04 IEET	< : : 5 +6_(	АР 5/2, С-6	/20 .0_	S-V	√—м

**C-D** 



rojects\2017\17-046 A&F Wood Products\Dwg\Engineering\17-046\_C-7.0\_Details.dwg DATE:5/23/2017 7:29 AM



Knox-Box<sup>®</sup> 1650 Series LIFT-OFF DOOR MODEL

FRONT MEW

SIDE NEW

1/4" steel case,

100% welded

High Security Residential Key Box

'Stainless Steel

lock cover

tamper seal -

Hole for



The 1650 Series KNOX-BOX® key box was developed to secure residential entrance keys. Knox Residential is used for fire, police and medical emergency entry in gated communities, single family residences and apartment complexes. The residential key box is also available with a door-hanging bracket for emergency medical access during temporary convalesence.

## Features and Benefits

- Holds up to 2 keys in interior compartment
- Ensures high security with UL Listed Medeco lock
- Includes a Knox-Coat<sup>®</sup> proprietary finishing process that protects Knox products up to four times better than standard powder coat
- Resists moist conditions with a weather resistant door
- gasket Colors: Black, Dark Bronze, Aluminum
- Weight: 7 lbs.
- Options

applications

- Alarm Tamper Switch (UL Listed)
- Door bracket for hanging over 1-7/8" door for temporary
- Recessed Mounting Kit

## Attention: KNOX-BOX® key box is a very strong device that MUST be mounted properly to ensure maximum security and resist physical attack.

The Knox Company manufacturers a complete line of high security

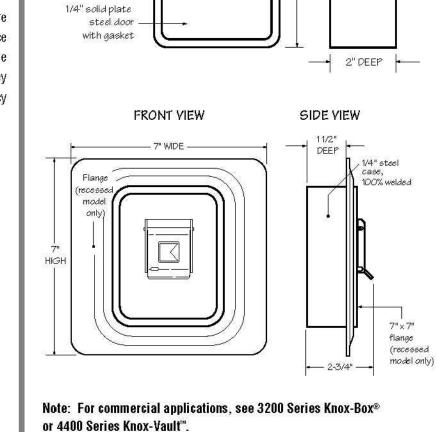
products including Knox-Box key boxes, key vaults, cabinets,

key switches, padlocks, locking FDC caps, plugs and electronic

master key security systems. For more information or technical

assistance, please call Customer Service at 1-800-552-5669.

### Knox® Rapid Entry System

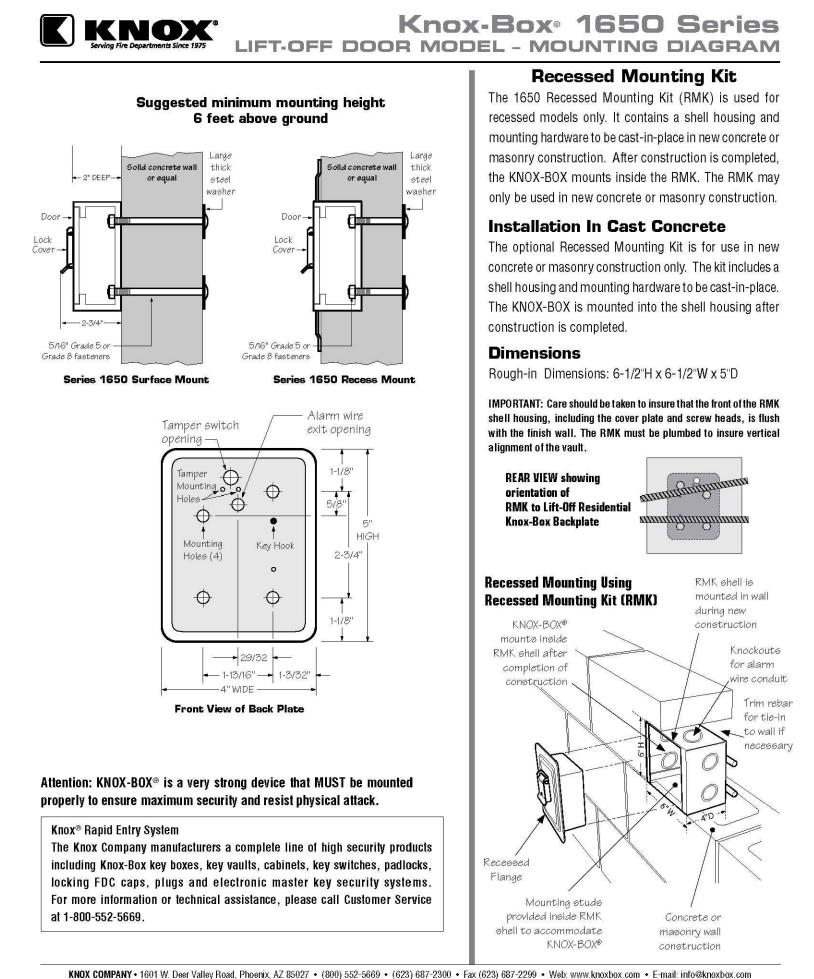


**Ordering Specifications** 

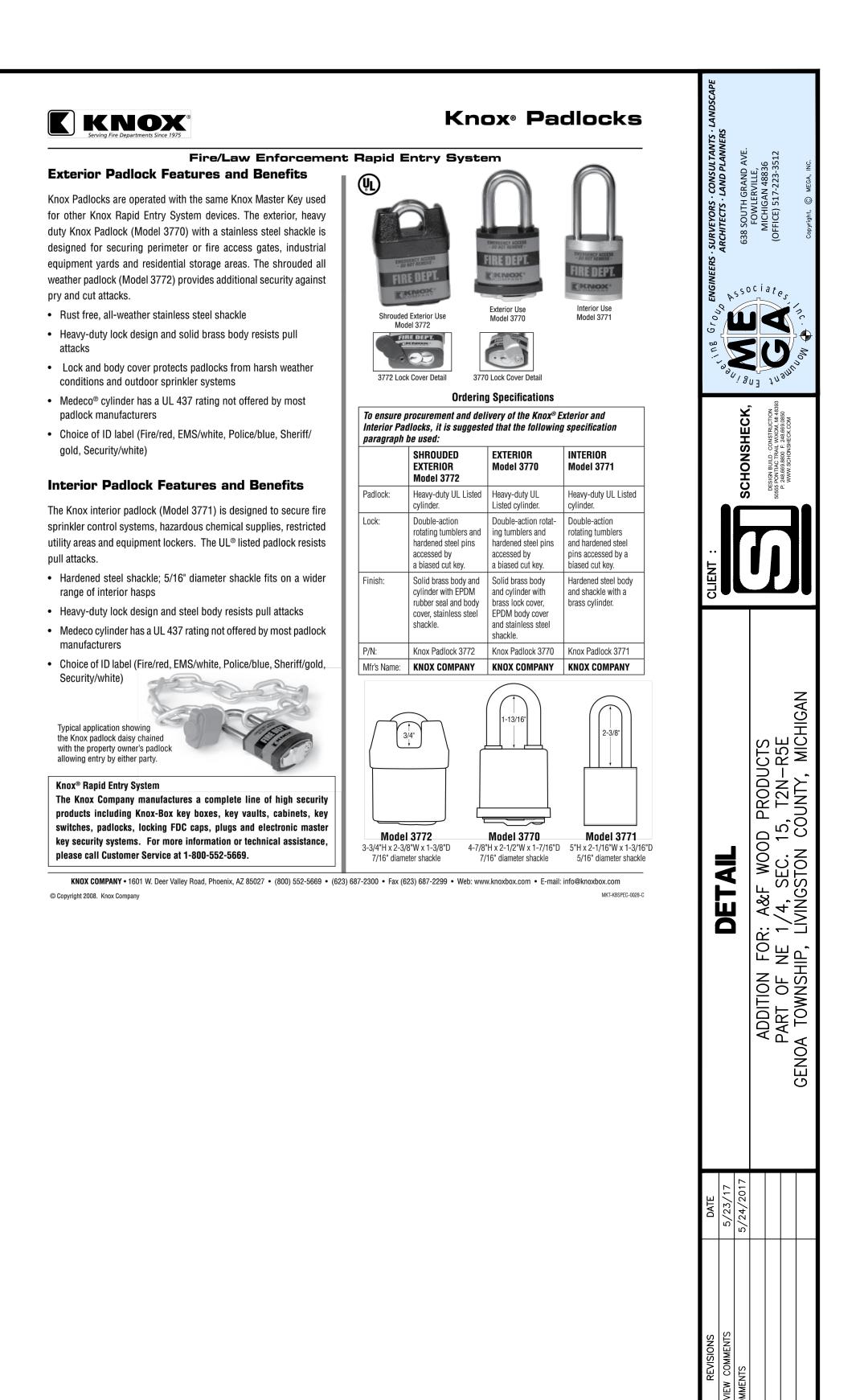
To insure procurement and delivery of the 1650 Series KNOX-BOX lift-off door model, it is suggested that the following specification paragraph be used: KNOX-BOX surface or door mount. 1/4" plate steel housing, 1/4" thick steel door with interior gasket seal. Box and lock UL® Listed. Lock has 1/8" stainless steel dust cover with tamper seal mounting capability. ione, Curtace mount 5"U v 4"M/ v 2 2/4"D Extorior Dimo

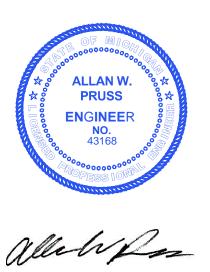
EXTENDI DIMENSIO	JIS: SUITAGETHOURT - S H X 4 W X 2-3/4 D
	Door hanger - 5"H x 4"W x 2-3/4"D
	Recessed – 7" x 7" (flange)
Lock:	UL Listed. Double-action rotating tumblers and hardened steel
	pins accessed by a biased cut key.
Fin <b>i</b> sh:	Knox-Coat <sup>®</sup> proprietary finishing process
Colors:	Black, Dark Bronze, Aluminum
P/N:	1650 Series KNOX-BOX (mfr's cat. ID)
Mfr's Name:	KNOX COMPANY

KNOX COMPANY + 1601 W. Deer Vallev Road. Phoenix. AZ 85027 + (800) 552-5669 + (623) 687-2300 + Fax (623) 687-2299 + Web: www.knoxbox.com + E-mail: info@knoxbox.com © Copyright 2009. Knox Company MKT-KESPEC-0017-D



© Copyright 2009. Knox Company MKT-KBSPEC-0017-D







Call MISS DIG 3 full working days before you dig:
Michigan's One-Call
1-800-482-7171 online at: www.missdig.org

CONT. INT.: 1 FOOT

SCALE: 1'' = 30

JOB# :17-046

DATE : 5/2/2017

17-046\_C-7.0\_Details

SHEET : 10 OF 13

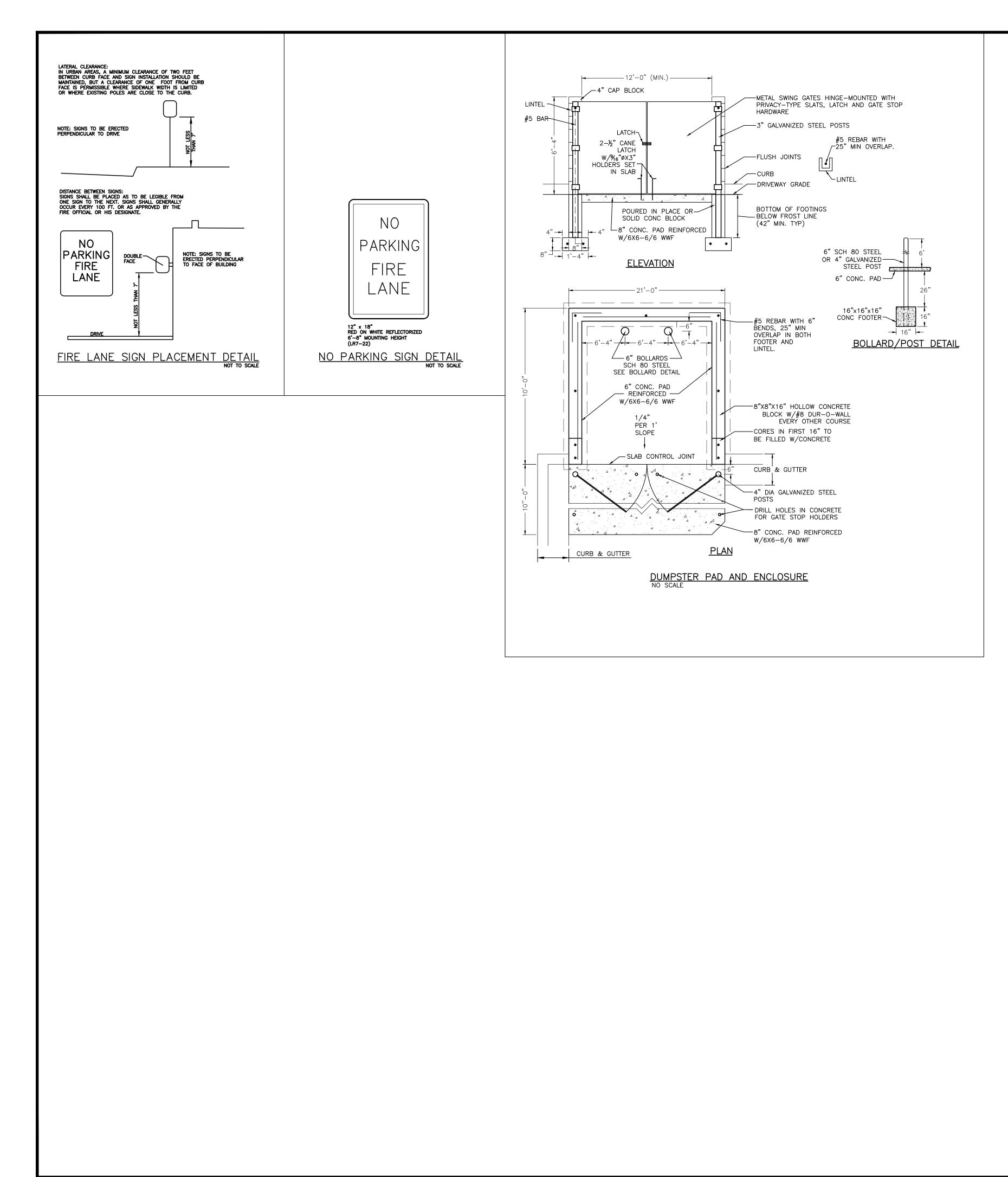
**C-7.0** 

DRWG. by :DC

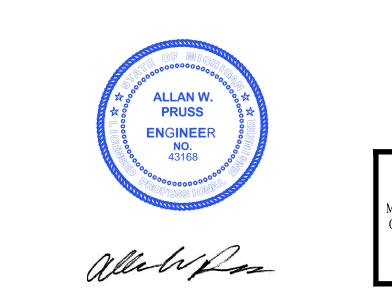
CHECK : AP

FIELD : DF, TG

V. SCALE :N/A



	Solution of the service of the servi		
	CLIENT : COLENT : COL		
	DETAL Addition For: A&F wood Products Part of NE 1/4, SEC. 15, T2N-R5E Genoa Township, Livingston County, Michigan		
	DATE 5/23/17 5/24/2017		
	REVISIONS REVISED PER REVIEW COMMENTS REVISED PER COMMENTS		
	CONT. INT.: 1 FOOT FIELD : DF, TG V. SCALE : N/A SCALE: 1" = 30'		
Call MISS DIG 3 full working days before you dig: Utility	JOB# :17-046 DRWG. by :DC CHECK : AP DATE : 5/2/2017 17-046_C-7.0_Details SHEET : 11 OF 13		
Michigan's Notification One-Call Organization 1-800-482-7171 online at: www.missdig.org	C-7.1		



## GENERAL NOTES

- All construction and materials shall be in accordance with the current standards and specifications of the local municipality, the County D.P.W., the County Drain Commissioner, Detroit Metro Water & Sewerage Department. Michigan Department of Transportation. Michigan Department of Environmental Quality, the State of Michigan, and the County Road Commission where applicable.
- Rules, regulations or laws of any controlling Governmental Agency shall govern, when they are more stringent than the requirements of these specifications
- Should the contractor encounter a conflict between these plans and specifications, either among themselves or with the requirements of any and all reviewing and permit-issuing agencies, he shall seek clarification in writing from the engineer before commencement of construction. Failure to do so shall be at sole expense to the contractor.
- The Contractor shall provide all materials, labor and equipment to complete the type of work which is bid, in accordance with the plans, specifications. details and to the satisfaction of the Owner and Owner's Representative.
- Contractor agrees that in accordance with generally accepted construction practices, contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance work on this project, excepting liability arising from the sole negligence of the design professional.
- Any work within street or highway right-of-ways shall be done in accordance with the requirements of the governmental agencies having jurisdiction and shall not begin until permits have been issued by these governing authorities.
- All necessary permits, bonds, insurances, etc., shall be paid for by the Contractor
- All elevations shown are based on benchmarks provided by the local municipality unless otherwise noted on the drawings.
- All items of work not specifically indicated as pay items on the drawings or in the bid package shall be considered incidental
- 0. The contractor shall be responsible for dust control during the periods of construction.
- 11. At least three (3) working days prior to any excavation, the Contractor shall contact MISS DIG (1-800-482-7171) to verify the location of any existing underground utilities and shall notify representatives of other utilities in the vicinity of the work.
- 12. All properties or facilities in the surrounding areas. public or private, destroyed or otherwise disturbed due to construction, shall be replaced and/or restored to the original condition by the Contractor, at no additional cost to the owner.
- 3. Manhole, catch basin, gate well rims and hydrant finish grade elevations must be as-built and approved by the Engineer before the Contractor's work is considered complete. Agency requierments for record drawings also
- Contractor shall remove and dispose of off-site any trees, brush, stumps, trash or other unwanted debris, at the Owner's direction, including old building foundations and floors. The burning or burying of trash, stumps or other debris will not be allowed.
- 15. All references to M.D.O.T. specifications refer to the most current Standard Specifications For Construction.
- 16. All Contractors bidding this project shall have visited the site to become thoroughly familiar with the site and the conditions in which they will be conducting their operations. Any variance found between the plans and existing conditions shall be reported immediately to the Design Engineer.
- 7. The locations and dimensions shown on the plans for existing underground facilities are in accordance with available information provided by the utility companies and governmental agencies without uncovering and measuring. The Design Engineer does not guarantee the accuracy of this information or that all existing underground facilities are shown.
- 8. The Owner may employ and pay for the services of a Engineer to provide on-site inspection and verify in the field that all backfill, pavements and concrete curb and gutter have been placed and compacted in accordance with the plans and specifications. If, in the opinion of the Engineer, the work does not meet the technical or design requirements stipulated for the work, the Contractor shall make all necessary adjustments as directed by the Engineer. The Contractor shall make no deviations from the contract documents without specific written approval of the Owner.
- 9. All excavated material removed from the sanitary sewer, storm sewer and water main trenches under, through and within 3 feet of the 45° zone of influence line of existing or proposed paving, sidewalk areas and per plans, not suitable for backfill, shall be removed from these areas and disposed of.
- 20. The Contractor shall restore to their present conditions any pavement or public rights-of-way that is disturbed by the operations of the Contractor. All restoration work in public rights-of-way shall be performed to the satisfaction of the government agencies having iurisdiction.
- 21. The Contractor shall provide all necessary barricades, signage and lights to protect the work and safely maintain traffic. in accordance with local requirements and the Manual of Uniform Traffic Control Devices (latest edition).
- 22. O.S.H.A. safety requirements all work, work practice, and materials shall comply with all applicable local, state and federal safety. occupational, health and environmental regulations and also NFPA and ANSI codes as applicable. All work inside a confined space such as manholes or underground structures shall be coordinated with utility owner and all worker safety requirements strictly enforced. Land shall be the sole responsibility of the contractor.
- 23. It shall be the contractor's responsibility to arrange for or supply temporary water service, sanitary facilities and electricity.
- 24. Contractor shall provide for the continuous operation of existing facilities without interruption during construction unless specifically authorized otherwise by the respective authority.
- 25. The contractor shall note existing underground utilities in the project plans. Backfill trenches for existing utilities shall be examined critically. Any trench which, in the opinion of the soils engineer are found to be soft, unstable, or unsuitable material shall be completely excavated and backfilled with suitable material. Sand backfill shall be used under pavement or within the 1 on 1 land influence of pavement or structures.
- SECTION 02015 EROSION CONTROL STANDARDS
- All erosion and sediment control work shall conform to standards and specifications of the jurisdictional agency under Part 91 of Act 451 of 1994, as amended.
- Under "Michigan's Permit-By-Rule For Construction Activities", promulgated under Act 245, Public Acts of 1929 as amended, an NPDES Storm Water Discharge Coverage permit is required for any construction activity that disturbs 1 acres or more of land. A certified storm water operator is required for the supervision and inspection of the soil erosion control measures at the construction site in accordance with the provisions of these rules.
- Daily inspections shall be made by contractor while working to determine the effectiveness of erosion and sediment control measures. Any necessary repairs shall be performed without delay. All soil erosion control provisions shall be properly maintained during construction

SECTION 02015 - EROSION CONTROL STANDARDS, CONTINUED

- 4. Erosion and any sedimentation from work on this site shall be contained on the site and not allowed to collect on any offsite areas or in waterways. Waterways include both natural and man-made open ditches, streams, storm drains, lakes, and ponds.
- 5. Contractor shall apply temporary erosion and sedimentation control measures when required and as directed on these plans. Contractor shall remove temporary measures as soon as permanent permanent stabilization of slopes, ditches, and other earth change areas have been completed.
- 6. Staging the work will be done by the contractor as directed in these plans and as required to ensure progressive stabilization of disturbed earth.
- 7. Soil erosion control practices will be established in early stages of construction by the Contractor. Sediment control practices will be applied as a perimeter defense against any transporting of silt off the site.
- 8. Dust shall be controlled by watering or by other approved means throughout all construction operations.
- 9. Permanent soil erosion control measures for slopes, channels, ditches or any disturbed land area shall be completed within 5 calendar days after final grading or the final earth change has been completed. When it is not possible to permanently stabilize a disturbed area after an earth change has been completed or where significant earth change has been completed or where significant earth change activity ceases, temporary soil erosion control measures shall be implemented within 5 calendar days. All temporary soil erosion control measures shall be maintained until permanent soil erosion control measures are implemented and established before a certificate of compliance is issued.
- 1. Although a sub-surface investigation may have been made by the owner, the bidder and any sub-contractors shall make a personal investigation of site and existing surface and sub-surface conditions. The contractor is responsible to acquaint himself with conditions of the work area. The contractor is advised to determine the sub-surface soil conditions and ground water conditions to his own satisfaction prior to bidding. No modifications to the unit prices bid for any item will be made due to variable sub-surface conditions. Dewatering if determined necessary by the contractor, by well pointing or deep wells will be

incidental to the installation cost of the item.

SECTION 02200 - GRADING AND EARTHWORK SPECIFICATIONS

- 2. The Contractor shall be responsible for having determined to his satisfaction prior to the submission of his bid the confirmation of the ground, the character and quality of the substrata, the types and augntities of materials to be encountered, the nature of the groundwater conditions, the prosecution of the work. the aeneral and local conditions including recent climatic changes, the time of year in which construction will take place and all other matters which can in any way affect the work under this Contract.
- 3. Prior to commencing the excavation the Contractor shall submit a plan of his proposed operations and time schedule to the Owner & Owners Representative for their approval.
- 4. The Contractor shall consider, and his plan for excavation shall reflect, the equipment and methods to be employed in the excavation and what methods will be used when wet conditions are encountered requiring groundwater control or other moisture conditioning. The Contractor shall submit an outline of his earthwork methods which shall take into account the overall construction schedule. The prices established in the proposal for the work to be done shall reflect all costs pertaining to the work. No claims for extras based on substrata or groundwater table conditions or moisture conditioning will be allowed.
- 5. The Contractor shall keep informed and the Owner's Representative informed at all times as to a "fill surplus or shortage" situation. Shortage or surplus of suitable material at the conclusion of the aradina and earthwork operation shall be the sole responsibility of the Contractor and he will be required to supply the deficiency or dispose of the surplus without additional cost to the Owner.
- 6. The Contractor shall remove vegetation, debris, unsatisfactory soil materials, obstructions, and other deleterious materials from ground surface prior to cut or fill operations.
- 7. Materials for fill or backfill required to grade the site and achieve design elevations shall be either on or off-site soils which are free of organic matter and debris. No topsoil shall be used as engineered fil
- 8. No fill may be placed until the exposed surfaces have been approved by the Geotechnical Engineer. All fill materials shall be approved by the Geotechnical engineer prior to placement.
- 9. If any unknown subsurface structures are encountered during construction, they shall be immediately brought to the attention of the Owner's representative and Design engineer prior to proceeding.
- 10. All fill material shall be placed and compacted at the optimum moisture content or as directed by the Geotechnical Engineer.
- 11. No frozen material shall be used as fill nor will any fill be placed on a frozen base.
- 12. No rock or similar material greater than 6" diameter shall be placed in the fill unless recommendations for such placement have been submitted by the Geotechnical Engineer in advance and approved by the Owner and Owner's Representative.
- 13. Compact fill material to at least the following percentage of Maximum Dry Density, as determined by ASTM D-1557 (Modified Proctor). No deviation from these compaction densities will be allowed unless specifically recommended by the Geotechnical Engineer and approved
- by the Owner and Owner's Representative. <u>% OF MAXIMUM DRY DENSITY</u> <u>FILL\_AREAS</u> Fill under building (extending 5' beyond footings at a slope 95% of 1 on 1)
- Fill in the upper 18" under pavement or sidewalks 95% Fill placed under or behind 95% retaining walls
- 90% All other fill 14. All fill material shall be placed and compacted in lifts, that will not
- exceed the depth in which the compaction equipment can achieve the maximum density required for the entire depth of the material placed in the lift.
- 15. All areas where fill has been placed or the existing soils have been disturbed shall be subject to compaction testing by the Geotechnical Engineer and shall be to the satisfaction of the Geotechnical Engineer, Owner and Owner's Representative.
- 16. Fill material under pavements or structures shall be free of organic or deleterious materials. It shall be suitable for supporting pavements and structures without adverse shrinking or swelling.
- 17. Fill material in berms and landscape areas shall be suitable to support growth of the landscaping materials (typical for the local climate) and as proposed by the Landscape Architect.
- 18. The Contractor is responsible for the removal and disposal of, in a legal manner, any trees, brush or debris that are within the designated cutting and filling areas to bring the site to proposed grades.
- 19. The Contractor shall stockpile excavated material only in designated areas as directed by the Owner or Owner's Representative.
- 20. During the performance of site grading operations, the subgrade shall be examined critically, and any areas discovered which, in the opinion of the Owner's Representative or Geotechnical Engineer, are soft and unstable, shall be excavated to such depths as may be necessary to insure satisfactory supporting properties as determined by the Geotechnical Engineer. These areas of excavation shall be backfilled immediately and shall be brought back to the elevation of the surrounding areas with approved fill material and in accordance with the earth fill construction procedure.

- 22. The finished subgrade surface shall be shaped to indicated profiles and shall be reasonably smooth and free from irregular surface changes and shall be no more than 1 inch above or below the indicated subarade elevations.
- 23. The grading Contractor shall backfill all parking lot planters and lawn areas to within 2 inches of the top adjacent curb grades. The top 4 inches minimum shall be topsoil, free from debris and stones larger than 1 inch in diameter.
- 24. The Contractor shall provide all necessary pumps, ditching, well point systems and other means for removing water from excavations. trenches, subgrades and other parts of the work. The Contractor shall continue de-watering operations until the water has been removed entirely. Upon completion of water removal the Contractor shall take appropriate action to dry the soils, rearade to proposed elevations and compact soils to the satisfaction of the Geotechnical Engineer and Owner's Representative.
- 25. The Contractor shall dispose of water in a safe and sanitary way to prevent flooding or injury to public or private property and shall obtain approval of the local governing authority before discharging run-off water to their system. 26. The Contractor shall provide a smooth transition between existing grades and new grades. SECTION 02500 - STORM SEWER SPECIFICATIONS

- 3. Proper implements, tools and facilities shall be provided and used for unloading and distributing materials along the line of work. Any pipe or fitting damaged in transportation or handling shall be rejected and immediately removed from the job site.

- plans and details.
- 8. Backfill, unless otherwise noted, shall be coarse sand, fine aravel or earth having a low plasticity index, free of rocks, debris and other foreign materials and defined as all passing through a 3/8" sieve and not more than 10% by volume passing through a 200-mesh sieve.

Poly	vin yl	cł
pipe	up	to
D303	34,	SDF
elast	om	etri
welde	ed p	oipe
Reint	forc	ed
conf	orm	to
Joint	s s	hal
conf	orm	ing

).	Perforated
	D-2729 or
	to AASHTO
	polyethylen

- B. Fine and coarse aggregates for concrete shall be per ASTM C-33. C. Aggregate for cement mortar shall be clean, sharp sand conforming to ASTM C-144.
- D. Hydrated lime shall comply with ASTM C-207, Type S.
- Water shall be clean and free from deleterious materials. Reinforcing steel for concrete shall be intermediate-grade new
- billet steel conforming to ASTM A-615, Grade 40. 14. Concrete, unless otherwise noted, shall have compressive strength after 28 days of 3000 psi minimum with 3" maximum slump.
- Concrete, where exposed to the weather, shall be air-entrained. Air entrainment shall be accomplished by the use of additives conforming to ASTM C-260. Air content shall be 6% + 1%. Additive shall be used strictly in accordance Manufacturer's printed directions.
- C. Ready-Mix Concrete shall conform to the requirements of ASTM C-94. 15. Mortar shall be specified hereinafter. Use method of mixing mortar at job so that specified proportions of mortar materials can be
- controlled and accurately maintained during work progress. Mortar shall not be mixed greater guantities than required for immediate use amount of water consistent with satisfactory workability. Re-tampering of mortar is not permitted.
- A. Mortar for laying brick or concrete masonry units shall conform to ASTM C-270, Type M, average compressive strength 2500 psi minimum at 28 days. Mortar mix shall be proportioned by volume.
- Mortar for plastering shall consist of 1 part Portland cement
- and 2-1/2 parts sand. Mortar for grouting of rip—rap shall consist of 1 part Portland cement and 3-1/2 parts sand.
- 16. Perform all excavating and trenching to dimensions and elevations indicated on Drawings.
- 17. Open no more trench in advance of pipe laying than is necessary to expedite the work.
- Care shall be taken not to excavate below the depths indicated on Drawings. Where excessive or unauthorized excavation takes place, the overdepth shall be backfilled to the proper grade with compacted bedding material, at no expense to the Owner.

SECTION 02200 - GRADING AND EARTHWORK SPECIFICATIONS, CONTINUED 21. Newly araded areas shall be protected from the action of the elements. Any settlement, displacement, ponding or washing out that may occur prior to commencing the next phase of construction shall be repaired, and grades reestablished to the required elevations and slopes.

- 1. These specifications shall be used in conjunction with the General Specifications and the Specifications and Detail Sheets of the governing agencies. If any conflict is found between the specifications, the stricter specifications shall be followed.
- 2. Contractor shall furnish certified evidence that all material tests and inspections have been performed and that the product has been manufactured in compliance with the applicable specifications.
- 4. The Contractor shall be responsible for the safe storage of all material intended for the work. He shall take all necessary precautions to prevent damage to materials, equipment and work.
- Pipe bedding, unless otherwise indicated, shall be CL. II sand, crushed stone or rounded gravel. Bedding material shall have 95% passing a 3/4" sieve and retained on a no. 4 sieve.
- 7. Porous filter material for perforated subsurface drains shall be crushed rock or gravel graded between 1-1/2" and 3/4" or per
- 9. Storm sewer piping and fittings shall be of the size and type indicated on the Drawings and shall conform to the following:
- A. Polyvinyl chloride (PVC) and Acrylonitrile butadiene styrene ABS for and including 10" in diameter, shall conform to ASTM R 23.5 for PVC pipe and ASTM D2751 for ABS pipe with ric gasket joints conforming to ASTM D3212 or chemically e joints conforming to ASTM F545.
  - concrete pipe, for pipe 12" in diameter and up, shall o ASTM C-76, Class IV unless modified by the Drawings. all be modified grooved tongue with rubber gasket ng to ASTM C-443.
  - subsurface drain pipe shall be PVC conforming to ASTM ADS perforated, corrugated polyethylene pipe conforming ) M-294 or corrugated steel pipe. Joints for PVC and
- e pipe shall be prefabricated coupling with solvent weld. Manholes, catch basins, and inlets shall be of the size and type indicated on the Drawings and shall be constructed of the following:
- Reinforced pre-cast concrete manhole sections including
- concentric or eccentric cones and grade rings shall be 4000 psi concrete and conform to ASTM C-478-64T. B. Brick shall be sound, hard-burned throughout and of uniform
- size and quality and shall be in accordance with ASTM C-32, Grade MS. C. Concrete masonry shall be solid pre-cast segmental units conforming to ASTM C-139.
- 11. Iron castings shall conform to ASTM A-48, Class 30. Bearing surfaces between cast iron frames, covers and grates shall be machined, fitted together and matched-marked to prevent rocking. System identifying letters 2" high shall be stamped or cast into all covers so that they may be plainly visible.
- 12. Castings shall be manufactured by East Jordan Iron Works, Inc., Neenah Foundry company or equal.
- 13. Concrete and masonry materials for construction of storm drainage structures shall consist of the following:
- A. Portland cement shall be standard brand of Portland cement conforming to ASTM C-150, type I or IA.
- A. Concrete fill below grade may be 2500 psi at 28 days.

SECTION 02500 - STORM SEWER SPECIFICATIONS, CONTINUED 19. Where unstable soil is encountered. Contractor shall not place pipe

until a solid bed has been provided.

- 20. Excavation for drainage structures shall extend a sufficient distance from the walls and footings to allows for forms, construction of walls, connections and for inspection.
- 21. Provide required timber sheeting, bracing and shoring to protect sides of excavation. Do not brace sheeting against pipe. Provide suitable ladders for safe entry to and exit from excavation.
- 22. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of trenches to avoid overloading, and to prevent slides or cave-ins.
- 23. When wet excavation is encountered, the trench shall be de-watered until the pipe has been laid and backfilled to a point at least 1 foot above top of pipe.
- 24. Manholes and catch basins shall be constructed of brick, concrete masonry units or pre-cast concrete with cast iron frames, covers and manhole steps.
- 25. The wall thickness of manholes and catch basins constructed of various materials and set at various depths shall meet these minimums. Adhere to requirements of the governing agency if they exceed these thicknesses:

Depth	Brick	Concrete Block	Pre-cast Concrete
0' – 10'	8"	6"	6"
10' – 16'	12"	8"	8"
16' – 25'	16"	12"	12"

- 26. Whenever existing manholes or sewer pipe are to be tapped, drill holes 4" center, to center, around the periphery of openings to create a plane of weakness joint before breaking section out.
- 27. Manhole steps shall be built into and thoroughly anchored to walls. Steps shall be factory installed in pre-cast structures.
- 28. All piping entering or leaving drainage structures shall be adequately supported by poured in-place concrete fill from pipe center to undisturbed ground.
- 29. Set frames in full bed of stiff mortar or bituminous mastic jointing compound at final elevation.
- 30. All timber sheeting below a plane 12" above top of pipe shall remain in place in order not to disturb pipe grading. Before backfilling, remove all other sheeting bracing and shoring.
- 31. Bedding used for trench bottom shall be extended up the sides and carefully placed around and over pipe in 6" maximum layers. Each layer shall be thoroughly and carefully compacted to 95% of maximum dry density as per ASTM D-1557 (Modified Proctor) until 12" of cover exists over pipe.
- Remainder of trench shall be backfilled with specified backfill material 32. to specified subgrade elevation. Backfilling shall be compacted to 90% of maximum dry density per ASTM D-1557.
- 33. In streets, drives, parking lots and other areas to have or havina improved hard surfaces, backfill shall be material specified and shall be deposited in 6" loose layers at optimum moisture content  $(\pm 2\%)$ compacted to 95% of maximum dry density per ASTM D1557. (Modified Proctor) Suitable materials found on site may be used.
- Before backfilling around drainage structures, all forms, trash and 34. debris shall be removed and cleared away. Selected excavated material shall be placed symmetrically on all sides in 8" maximum layers; each layer shall be moistened and compacted with mechanical or hand tampers.
- 35. After installation of pipes and drainage structures, clean them, and adjust tops to finish grade. Pipe shall be straight between structures, with the full inside diameter visible when sighting between structures.
- 36. Ends of headwall and end sections shall be fitted with a #4 round minimum welded steel rod grating. Rods shall be spaced 6" O.C. maximum. Weld rod at all intersections. Grate shall be removable for access and cleaning. 34.
- Rip-rap shall be laid from the bottom upward; stones shall be laid by hand with 8" minimum dimension perpendicular to grade with well-broken joints, compacted as it goes, true to line. All joints shall be filled with cement mortar. Surface stone to be exposed. Clean joints with wire brush.
- 38. The Contractor shall do all required excavation and trenching work and the Contractor shall assume sole responsibility for the completion of the works herein regardless of the nature of materials encountered during the course of the work. The Owner will not be liable for any costs whatsoever associated with, but not limited to, the presence of rock, peat, subterranean streams, excessive water or other difficult or unanticipated sub-surface phenomena.
- 39. All connections to existing sewers shall be incidental to the job.
- SECTION 02573 WATER MAIN SPECIFICATIONS
- Water main specifications shall be used in conjunction with the General Specifications, the watermain specifications, and the detail sheets of the governing agencies. If any conflict is found between the specifications, the stricter specifications shall be followed.
- 2. Ductile iron pipe, 16" diameter and smaller, shall conform to ANSI/AWWA specification C151/A21.51, Class 54. Ductile iron fittings shall conform to ANSI/AWWA specification C110/A21.10 for standard fittings or to ANSI/AWWA specification C153/A21.53 for compact fittings. Ductile iron pipe and fittings shall have a double thickness cement mortar lining conforming to ANSI specification A21.4.
- Joints for ductile iron water main shall be U.S. Pipe and Foundry Company Tyton Joint" or approved equal.
- 4. All water main shall be installed with a minimum cover of five feet, or as specified by the local governing municipality, below finish grade unless otherwise noted in the plans. When water mains must dip to pass under a storm sewer or sanitary sewer, the sections which are deeper than normal shall be kept to a minimum length by the use of vertical 11-1/4 bends properly anchored.
- See the water main standard detail sheets of the governing agency for the specific type of hydrant and gate valve to be used for this project. These detail sheets are included as part of the plans.
- 7. Before any water main will be accepted by the governing agency, it must pass a pressure test complying with the current specifications and procedures of the agency
- Before any water main system will be accepted by the governing agency, the fire hydrants must be painted as indicated on the water main standard detail sheets.
- Two inch (2") diameter corporation stops shall be provided in both the existing 9. water main and the new water main at all new connections
- 10. All tees, bends connections, etc. are incidental to the job.
- 11. Physical connections shall not be made between existing and new watermains until testing is satisfactorily completed.
- 12. The Contractor shall be responsible for the safe storage of all material intended for the work. The Contractor shall take all necessary precautions to prevent damage to materials equipment and work.
- 13. Pipe bedding, unless otherwise indicated, shall be crushed stone or rounded gravel. Bedding material shall have 95% passing a 3/4" sieve and retained on a No. 4 sieve; load factor shall be 1.9.
- 14. Backfill, unless otherwise noted, shall be coarse sand, fine gravel or earth having a low plasticity index, free of rocks, debris and other foreign materials and defined as all passing through a 3/8" sieve and not more than ten percent (10%) by volume passing through a 200 mesh sieve.
- 16. Gate wells shall be reinforced pre-cast concrete sections including concentric or eccentric cones and grade rings shall be 4000 psi concrete and conform to ASTM C-478.
- 17. Thrust blocks shall be made of 3000 psi concrete wet mix.

SECTION 02573 - WATER MAIN SPECIFICATIONS, CONTINUED 18. The maximum width of trench to top of pipe shall be as follows:

- Pipe Diameter. . . Trench Width
- 0.D. Plus 24" 42" through 60". . . O.D. Plus 30" 66" and Larger. . . 0.D. Plus 36"
- 19. Open no more trench in advance of pipe laying than is necessary to expedite the work.
- 20. Care shall be taken not to excavate below the depths indicated on drawings. Where excessive or unauthorized excavation takes place, the overdepth shall be backfilled at the proper grade with compacted bedding material, at no expense to the Owner.
- 21. Where unstable soil is encountered, Contractor shall not place pipe until a solid bed has been provided. 22. Excavation for structures shall extend a sufficient distance from the walls and
- footings to allow for forms, construction of walls, connections and for inspection.
- 23. Gate wells shall be constructed of brick, concrete masonry units or pre-cast concrete with cast iron frames, covers and manhole steps, as indicated on Drawinas and specified herein.
  - A. Completely fill joints on pre-cast concrete sections with bituminous mastic jointing compound or joints shall be made with cement mortar with inside pointing and outside rubber wrap.

B. Brick shall be wet when laid. Lay brick or concrete masonry units in mortar so as to form full bed, with end and side joints in one operation, with ioints not more than 3/8" wide except when bricks or concrete masonry units are laid radially, in which case the narrowest part of joint shall not exceed 1/4". Lay in true line and, whenever practical, joints shall be carefully struck and pointed on inside.

- C. Protect fresh brick work from freezing, from drying effects of sun and wind, and for such time as directed by the Geotechnical Engineer. In freezing weather, heat sufficiently to remove ice and frost from brick work.
- 24. Gate well steps shall be built into and thoroughly anchored to walls. 25. All piping entering or leaving gate wells shall be adequately supported by
- poured-in-place concrete fill from pipe center to undisturbed ground. 26. The outside surfaces of brick or concrete masonry portion of gate wells shall
- be plastered and trowled smooth with 1/2" layers of cement mortar.
- at final elevation.

be followed.

job site.

and orderly progression of the work.

or AASHTO M-199.

the work.

to the Owner.

- 28. Place horizontal and/or vertical thrust blocks at all plugs, caps, tees and fittings. The cost of thrust blocks shall be included in the price bid per foot for water main. Thrust blocks shall not be backfilled prior to observation by the controlling governmental agency.
- 29. In unstable soil conditions, thrust blocks shall be supported by piling driven to solid foundations or by removal of the unstable soils and replacement with ballast of sufficient stability to resist the thrusts. The cost of piling or ballast at thrust blocks shall be included in the price bid for water main.
- 30. Place all concrete anchorages and encasements, as called for on the drawinas. The cost of anchorage and encasements shall be included in the price bid for water main.
- 31. Bedding used for trench bottom shall be extended up the sides and carefully placed around and over pipe in 6" maximum layers. Each layer shall be thoroughly and carefully compacted to 95% of maximum dry density as per ASTM D-1557(Modified Proctor) until 12" of cover exists over pipe.
- 32. Remainder of trench shall be backfilled with specified backfill material to specified subgrade elevation. Backfilling shall be compacted to 90% of maximum dry density per ASTM D-1557.
- In streets, drives, parking lots and other areas paved, or areas proposed to be 33. paved, place sand backfil in 6" loose layers at optimum moisture content  $(\pm 2\%)$ and compacted to 95% of maximum dry density as determined by ASTM D-1557 (Modified Proctor).
- Before backfilling around structures, all forms, trash and debris shall be removed and cleared away. Selected excavated material shall be placed symmetrically on all sides in 8" maximum lavers: each laver shall be moistened and compacted with mechanical or hand tampers.
- The Contractor shall do all required excavation and trenching work and the Contractor shall assume sole responsibility for the completion of the works herein reaardless of the nature of materials encountered durina the course of the work. The Owner will not be liable for any costs whatsoever associated with, but not limited to, the presence of rock, peat, subterranean streams, excessive water or other difficult or unanticipated sub-surface phenomena.

- 27. Set frames in full bed of stiff mortar or bituminous mastic jointing compound

## SECTION 02583 - SANITARY SEWER SPECIFICATIONS

- These specifications shall be used in conjunction with the General Specifications and the Sanitary Sewer Specifications and Detail Sheets of the governing agencies. If any conflict is found between the specifications, the stricter specifications will
- The governing agency will inspect the installation of all sanitary sewer piping. Proper implements, tools and facilities shall be provided and used for unloading and distributing materials along the line of work. Any pipe or fitting damaged in transportation or handling shall be rejected and immediately removed from the
- The Contractor shall be responsible for the safe storage of all material intended for the work. The Contractor shall take all necessary precautions to prevent damage to materials, equipment and work.
- The Contractor shall do all required excavation and trenching work and the Contractor shall assume sole responsibility for the completion of the works herein regardless of the nature of materials encountered during the course of the work. The Owner will not be liable for any costs whatsoever associated with, but not limited to, the presence of rock, peat, subterranean streams, excessive water or other difficult or unanticipated sub-surface phenomena.
- It will be the responsibility of the Contractor to coordinate and schedule the sanitary sewer installation with the grading, excavation and other site utility subcontractors and the Owners Representative so as to provide for a smooth
- Sanitary sewer piping and fittings shall be of the size and type indicated on the drawings and shall conform to the requirements of the governing agency. Reinforced pre-cast concrete manhole sections including concentric or eccentric
- cones and grade rings shall be 4000 psi concrete and conform to ASTM C-478
- Open no more trench in advance of pipe laying than is necessary to expedite
- Care shall be taken not to excavate below the depths indicated on Drawings. Where excessive or unauthorized excavation takes place, the overdepth shall be backfilled at the proper grade with compacted bedding material, at no expense

- SECTION 02583 SANITARY SEWER SPECIFICATIONS, CONTINUED
- Provide required timber sheeting, bracing and shoring to protect sides of 11 excavation. Do not brace sheeting against pipe. Provide staging and suitable ladders where required.
- 12. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of trenches to avoid overloading, and to prevent cave-ins.
- 13. When wet excavation is encountered, the trench shall be de-watered until the pipe has been laid and backfilled to a point at least 1 foot above top of pipe.
- 14. Sanitary Sewer crossings shall be made with 18" of vertical clearance from another utility and shall be made without placing point loads on either pipe. Construct saddles, or place protective concrete cap to prevent damage.
- All connection branches in the sewer pipe shall be securely and completely fastened to, or formed in, the wall of the pipe during the course of manufacture. All pipe containing such connection branches shall be installed with the main sewer. The proposed location of the wye shall be per plan or as directed by the Owner or Owner's Representative.
- Service leads shall terminate (with an approved stopper) per plans or as directed 16. by Owner or Owner's Representative.
- 17 Each riser and/or service lead shall be marked with a 2 inch x 2 inch x 8 foot long hardwood marker, placed vertically at the end of the pipe.
- 18. Downspouts, weep tile, footing drains, or any conduit, that carries storm or ground water shall not be allowed to discharge into a sanitary sewer.
- 19. The connection to an existing sanitary sewer manhole shall be made in strict conformance with the plans and specifications, with all work being done in a workmanlike manner. This work shall include the construction of a proper channel in the existing manhole at which the connection is to be made, to direct the flow of incoming fluids to the existing outlet in a manner which will tend to create the least amount of turbulence. Any portion of the existing structure which would interfere with such construction shall be removed. The cost of all connections shall be included in the Contract price for the main sewer unless otherwise provided in the Proposal.
- 20. When connections are made with sewers or drains carrying fluids, special care must be taken that no part of the work is built under water. A flume or dam must be installed and pumping maintained, if necessary, and the new work kept dry until completed and any concrete or mortar has set.
- 21. All timber sheeting below a plane 12" above top of pipe shall remain in place in order not to disturb pipe grading. Before backfilling, remove all other sheeting, bracing and shoring.
- 22. Bedding used for trench bottom shall be extended up the sides and carefully placed around and over pipe in 6" maximum layers. Each layer shall be thoroughly and carefully compacted to 95% of maximum dry density as per ASTM D-1557 (Modified Proctor) until 12" of cover exists over pipe.
- Remainder of trench shall be backfilled with specified backfill material as approved by the Geotechnical Engineer to specified subgrade elevation. Backfilling shall be compacted to 90% of maximum dry density per ASTM D-1557.
- In streets, drives, parking lots and other areas to have or having improved hard surfaces, backfill shall be material specified and shall be deposited in 6" loose layers at optimum moisture content  $(\pm 2\%)$  and compacted to 95% of maximum dry density as determined by ASTM D-1557 (Modified Proctor). Suitable materials found on site may be used if approved by the Geotechnical Engineer and Owner's Representative. Where service or utility lines cross pavement or sidewalk, bedding shall be carried to 3 feet behind the curb line or 3 feet behind the side of sidewalk farthest away from the proposed pavement.
- 25. Before backfilling around manholes, all forms, trash and debris shall be removed and cleared away. Selected excavated material shall be placed symmetrically on all sides in 8" maximum layers; each layer shall be moistened and compacted with mechanical and hand tampers.
- 26. Sanitary sewer manholes must be water-tight and shall be precast sections with modified grooved tongue joints with rubber gaskets, conforming to ASTM designation C478. Cast iron steps shall be cast into the manhole sections at 16" O.C. during manufacture and at 45° from the centerline of the sewer. Manhole steps shall be Neenah R-1980-E, East Jordan Iron Works, 8500 or approved equal.
- When existing reinforced concrete manholes or sewer pipes are to be tapped, a hole of the appropriate diameter, shall be core drilled, through the wall of the manhole or sewer pipe, to accept a resilient connector conforming to ASTM designation C-923. Resilient connectors shall be "Kor-N-Seal" as manufactured by "The Core and Seal Co." or approved equal.
- 28. All sewers shall be subjected to infiltration, air or exfiltration tests or a combination thereof in accordance with the following requirements, prior to acceptance of the system and prior to removal of the bulkheads.
- a) All sewers over 24" diameter shall be subjected to infiltration tests. All sewers of 24" diameter or smaller, where ground water level above the top of sewer is over seven (7) feet, shall be subjected to an infiltration test.
- b) All sewers of 24" diameter of less, where the ground water level above the top of the sewer is seven (7) feet or less, shall be subject to air tests or exfiltration tests.
- 29. No sanitary sewer installation or portion thereof shall have infiltration exceedina 100 gallons per inch diameter per mile of pipe per 24 hour period.

	ΥΝΒ Grov, ENGINEERS · SURVEYORS · CONSULTANTS · LANDSCAPE	Solution of the second se	B 638 SOUTH GRAND AVE.		τ (OFFICE) 517-223-3512		and the copyright, C MEGA, INC.
	CLIENT :		SCHONSHECK.		DESIGN BUILD - CONSTRUCTION 50555 PONTAC TRAIL WIXOM, MI 48393	P: 248,669,8800 F: 248,669,0850 WWW;SCHONSHECK.COM	
		SPECIFICATIONS				•	GENOA IOWNSHIP, LIVINGSION COUNIY, MICHIGAN
	DATE	5/23/17	5/24/2017				
	REVISIONS	REVISED PER REVIEW COMMENTS	REVISED PER COMMENTS				
	FIE V.		IN : D ALE	F, ' :N	TG I/A	001	-
			.E: ∳ :	-		46	
	C⊢ DA 17	IECI TE 04	. by K : : 5 H6_( T :	AP 5/2, 0-8	/20	Spe	
A DESCRIPTION OF THE PARTY OF T		C	<b>)</b> -	3.	3.	0	

## SECTION 02621 - BITUMINOUS PAVING SPECIFICATIONS

- Reference specifications where applicable to work under this section are referred to by abbreviation as follows:
- A. American Association of State Highway and Transportation Officials (AASHTO).
- B. The Asphalt Institute (TAI)
- C. Michigan Department of Transportation/
- Current Standard Specifications For Construction (M.D.O.T.) D. American Society for Testing Materials (ASTM)
- Crushed Aggregate Base Course (CABC) shall meet the requirements of Section 8.02 of the MDOT Standard Specification for Construction and shall consist of 21AA Crushed Aggregate.
- Note: The use of slag is prohibited. Tack Coat shall be emulsified asphalt meeting requirements of AASHTO M140 and TAI SS-1H.
- Aggregate shall consist of crushed stone, crushed gravel, a mixture of uncrushed gravel with either crushed stone or crushed gravel, or other inert material having similar characteristics. It shall be composed of clean, tough, durable fragments from an excess of flat or elonaated pieces, and shall be free of organic matter and deleterious substances and meet the requirements of MDOT Standard Specifications, Section 8.02.
- Fine aggregate shall be well graded from coarse to fine and consist of natural sand, stone screenings, or a blend of natural sand and stone screenings. It shall be composed of rough surfaced and angular grains of guartz or other hard durable rock and meet the requirements of MDOT Standard Specifications, Section 8.02.
- Asphalt cement shall comply with the requirements of AASHTO M226 (ASTM 3381) for bituminous concrete surface course and surface treatment.
- Bituminous Concrete shall comply with MDOT Section 7.10 of Standard Specifications for Construction
- Bituminous Leveling Course shall be MDOT 1100L, 20AA mix.
- Bituminous wearing course shall be MDOT 1100T, 20AA mix.
- 10. The Contractor shall submit, to the Owner, two copies of materials certificates signed by Material producer and Contractor. Certificates shall state that each material item meets specified requirements.
- 11. The Contractor shall submit to the Geotechnical Engineer, job-mix formulas for each required asphalt aggregate mixture. Mix designs shall be within allowable tolerances as specified for the particular application.
- 12. Subgrade preparations shall consist of the final machining of the subgrade immediately prior to placing the bituminous base course. The subgrade shall be compacted per plans and details. The subgrade shall be true to line and arade.
- 13. Crushed Aggregate Base Course shall be compacted to a density equal to at least 95 percent of the maximum dry density as determined by ASTM D-1557 (Modified Proctor).
- 14. Bituminous concrete pavement construction methods shall conform to applicable portions of Section 4.00 of the MDOT Standard Specifications for Construction
- 15. The Contractor shall not place the Aggregate Base Course or the Bituminous base Course prior to the approval of the subgrade by the Geotechnical Engineer.
- 16. Each lift and course of bituminous concrete shall be approved by the Geotechnical Engineer, prior to the placement of a succeeding course or lift.
- Apply bituminous tack coats only when temperature has not been below 35 degrees F. for 12 hours immediately prior to application. Construct Bituminous Concrete Wearing Course only when atmospheric temperature is above 40-degrees F. and proceeding course or lift is clean and dry. Base course may be laid when temperature is above 35 degrees F. and rising and approved by the Geotechnical Engineer.
- 18. The Bituminous Concrete shall be transported from the mixing plant to the point of use in vehicles conforming to the requirements of Section 4.00 of the MDOT Standard Specifications for Construction. Deliveries shall be scheduled so that spreading and rolling of all Bituminous Concrete prepared for one day's run can be completed during daylight, unless adequate artificial lighting is provided. Hauling over freshly placed Bituminous mat shall not be permitted until the Bituminous Concrete has been compacted, as specified, and allowed to cool to atmospheric temperature.
- 19. Upon arrival, the Bituminous Concrete shall be spread to a thickness not to exceed 3-inches and to the full width by an approved Bituminous Paver. It shall be struck off in a uniform laver of such depth that. when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the Bituminous Mat. Unless otherwise directed, placement of the Bituminous Concrete shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. The Bituminous Concrete shall be placed in consecutive adjacent strips having a minimum width of 10 feet, except where edge lanes require less width to complete the area. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet
- 20. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the Bituminous Concrete may be spread and raked by hand tools.
- 21. The Bituminous Concrete shall be placed at a temperature of not less than 250 nor higher then 350 degrees F or as directed by the Geotechnical Engineer.
- 22. The Bituminous Concrete mixture shall be thoroughly and uniformly compacted by rolling. The surface shall be rolled when the Bituminous Mat has attained sufficient stability so that the rolling does not cause undue displacement, cracking and shoving. The sequence of rolling operations shall be at the discretion of the Contractor.
- 23. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot bituminous concrete. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once.
- 24. Sufficient rollers shall be furnished to handle the output of the plant. rolling shall continue until all roller marks are eliminated, the surface is of uniform texture and true to grade and cross-section, and the required field density is obtained
- 25. Tack coat shall be applied to the surface of previous lifts and courses of Bituminous Concrete and to surfaces abutting or projecting into the Bituminous Concrete.
- 26. Immediately before placing a succeeding lift or course of bituminous concrete the preceding lift or course shall be cleared of any debris by appropriate methods.
- 27. To prevent adhesion of the Bituminous Concrete to the roller, the wheels shall be kept properly moistened, but excessive water will not be permitted
- 28. In areas not accessible to the roller, the Bituminous Concrete shall be thoroughly compacted with hot hand tampers.
- 29. Any Bituminous Concrete that becomes loose and broken, mixed with dirt, or in any way defective shall be removed and replaced with fresh hot Bituminous Concrete and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.
- 30. The Contractor shall provide at least two rollers for each paver operating on the work. The Contractor shall use additional rollers as required to obtain the specified pavement density.
- 31. The Contractor shall carefully make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work. Construct joints to have the same texture. density and smoothness as other sections of the Bituminous Concrete Course. The Contractor shall clean contact surfaces of sand, dirt, or other objectionable material before making the joint.

### SECTION 02621 - BITUMINOUS PAVING SPECIFICATIONS, CONTINUED

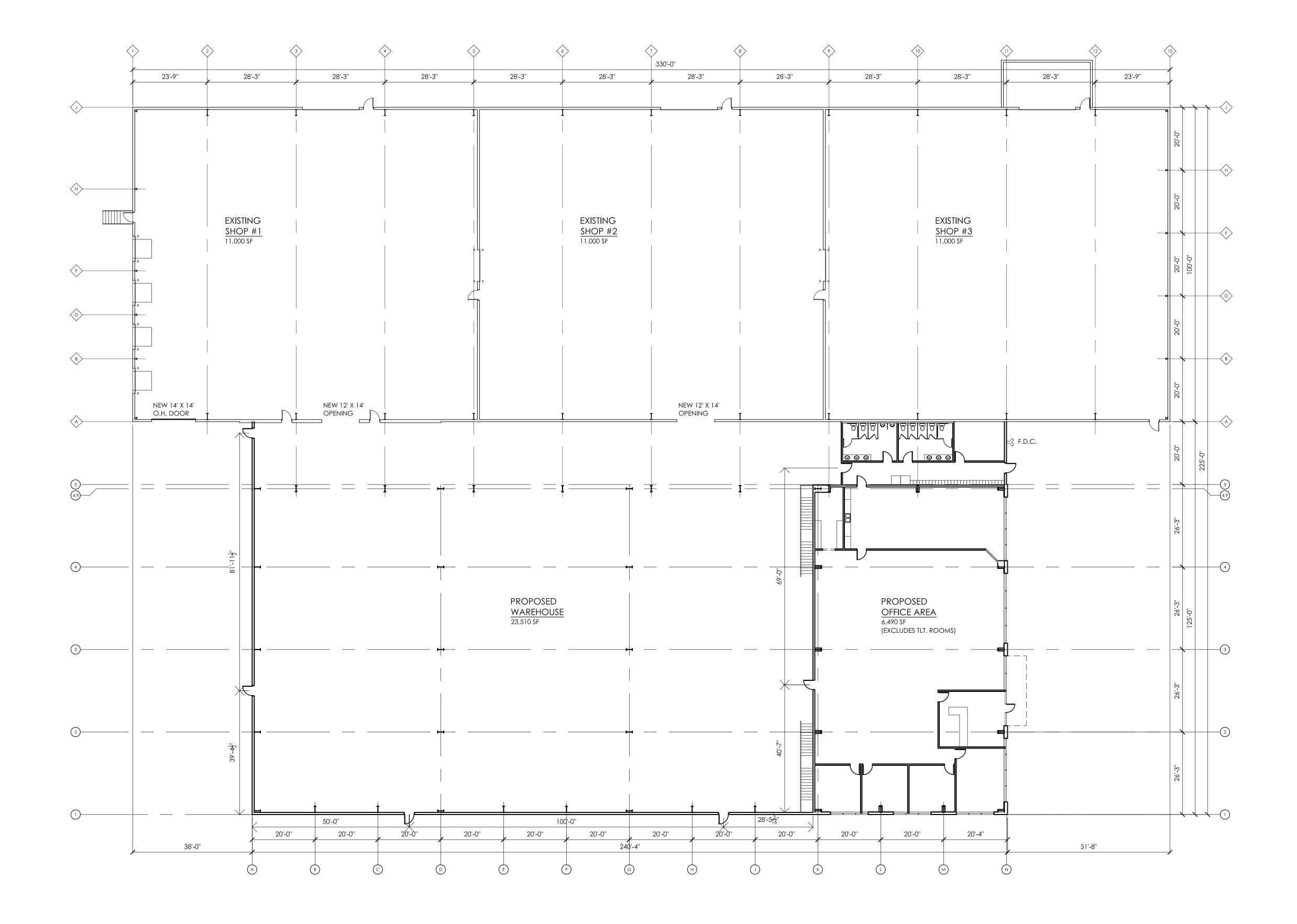
- 32. The Contractor shall test the finished surface of each Bitumi Concrete Course for smoothness, using a 10 foot straightedg parallel with and at right angles to centerline of paved area. shall not be acceptable if exceeding the following tolerances
- A. Leveling Course Surface: 1/4 inch, plus or minus 1/4 B. Surface Course: 1/4 inch
- 33. The Contractor shall test crowned surfaces with a crown tem centered and at right angles to the crown. Surfaces will no acceptable if the finished crown surfaces vary more than 1/4 from the crown template.
- 34. After final rolling, the Contractor shall not permit vehicular t on the Bituminous Concrete Pavement until it has cooled and and in no case sooner than six hours or as directed by the Geotechnical Engineer.
- 35. The aggregate base must extend a minimum of 1' behind the back-of-curb around the perimeter of the parking lot and d
- SECTION 02630/02641 CONCRETE CURB, SIDEWALK AND PAVEME 1. These Specifications shall agvern the construction of all pave
- gutter, sidewalks, service walks, driveway approaches, and loc as indicated on the Drawinas.
- 2. Reference specifications where applicable to work under this are referred by abbreviation as follows:
  - A. American Association of State Highway and Transporta Officials (AASHTO)
  - B. American Concrete Institute (ACI)
  - C. Michigan Department of Transportation/ Current Standard Specifications For Construction (M.D.C
  - D. American Society for Testing and Materials (ASTM)
- The fine aggregate shall meet all requirements of Section 8.0 of MDOT Specification for No. 2NS Natural Sand.
- The coarse aggregate shall meet all requirements of Section of M.D.O.T. Specifications for No. 6AA Coarse Agaregate.
- 3. The Contractor shall submit, to the Owner, two copies of mo certificates signed by Material Producer and Contractor. Cer shall state that each material item meets specified requirem
- 4. The Contractor shall submit, to the Geotechnical Engineer, jo formulas for each required cement-aggregate mixture. Mix shall be within allowable tolerances as specified for the partic
- 5. Concrete mix shall be air-entrained and proportioned to prov A. Compressive strength at 28 days: 3500 psi min., or
  - B. Total air content by volume: 5% to 8%.
  - C. Slump 3 inch maximum, or as indicated on plans.
- 6. The Contractor shall at his expense furnish samples of fresh and provide safe and satisfactory facilities for obtaining the
- 7. Construct concrete curbing only when ground temperature is 35 dearees F. and base is dry.
- 8. All cement used in curb construction shall be Portland Ceme Type I or IA ASTM C-150.
- 9. Water used in concrete shall be clean, free from oil, acids, alkalis or vegetable matter and potable. If Municipal water in the concrete, all necessary permits shall be obtained from Municipal Water Department.
- 10. Air Entraining Admixture shall be in accordance with ASTM C-11. All ready-mixed concrete suppliers must be approved by the Concrete shall be manufactured and delivered to the job site ready mixed concrete manufacturer thoroughly experienced in mixed concrete. If requested by the Owner, submit a writter of proposed ready-mixed concrete Manufacturer, giving qualif of Personal, location of batching plant, list of Projects simil of specified work, and other information as may be requeste
- 12. The Contractor shall submit a Statement of Purchase for Re Concrete: Prior to actual delivery of concrete, submit to the Engineer four copies of Statement of Purchase, giving the dr cement and saturated surface dry weights of fine and coarse and quantities, type and name of admixtures (if any) and of per cu.vd. that will be used in the manufacture of the cond The Contractor shall also furnish evidence satisfactory to the Engineer that the materials to be used and proportions select produce concrete of the quality specified. Whatever strength the auantity of cement used shall not be less than the mini
- 13. Ready-Mixed Concrete Delivery Tickets: Submit one copy of delivery ticket to the Geotechnical Engineer and Contractor in with Section 16 of ASTM C94.
- 14. Ready-Mixed concrete shall be batched, mixed and transporte accordance with ASTM C94, and comply with ACI 304 "Recon Practice for Measuring, Mixing, Transporting and Placing Conc except as otherwise specified herein.
- 15. Ready-mixed concrete shall be mixed and delivered to the p discharge at the job by means of a ready mix concrete truc
- 16. No water from the truck water system or elsewhere shall be after the initial introduction of the mixing water for the batc Under no circumstances shall the approved maximum water be exceeded nor shall the slump exceed the maximum specif
- 17. Discharge of the concrete shall be completed within 1-1/2 h before the drum has revolved 300 revolutions, whichever com after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregation
- 18. In hot weather (air temperature 80-degrees F. and above) a conditions contributing to quick stiffening of the concrete, the shall be reduced to one hour.
- 19. Concrete delivered in cold weather (air temperature 45-degre and lower) shall have a temperature not less than 60-degr at the point of discharge at the job, and in compliance with "Cold Weather Concreting". Concrete placing will not be pern when the air temperature is 35-degrees F. or lower.
- 20. Concrete delivered under hot weather conditions contributing stiffening of concrete, or in air temperature of 80-degrees shall have a temperature between 60- and 80-degrees F. a discharge at the job, and in accordance with ACI 305R "Hot
- 21. In no case shall the mixer or truck be flushed out onto the in a catch basin or sewer manhole, or in any public right-of
- 22. Reinforcement bars shall be per ASTM A615-84A, Grade 60
- 23. Tie Wire shall be black, annealed steel wire, not less than 16 24. Bar supports shall conform to "Bar Support Specifications" c
- ACI "Manual of Standard Practice." Provide chairs, spacers devices suitable for proper spacing supporting and fastening 25. When forms are used and the curb radius is less than 200 m
- curved alignment shall be provided for by either standard ste equipped with flexible lines or by flexible forms. The forms the full depth of the section. Curb and autter forms shall as to permit the inside of the forms to be securely fastened
- 26. All new curb shall be placed only on a prepared subgrade, sr leveled to the grades established by the Engineer.
- 27. Compact and cut-to-grade subgrade under forms so that for set will be uniformly supported for the entire length. Secure brace or tie forms to prevent leakage of mortar. Bracing with will not be permitted.
- 28. Coat surfaces of forms to be in concrete with a light clear oil or parting compound which will not stain the concrete.

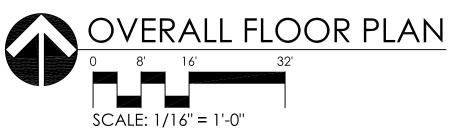
)	SEC.	TION 02630/02641 - CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS, CONTINUED
inous ge applied	29.	The interior surfaces of concrete conveying equipment shall be maintained free of hardened concrete, debris, water, snow, ice and other deleterious materials.
Surface for smoothness.	30.	
⊧inch.		curb and gutter paver, provided the required finish, and cross—section, as shown on Drawings are obtained. Concrete shall be placed to provide one course monolithic structure without the use of mortar topping or sand—cement drier. Concrete shall be spaded or vibrated sufficiently to ensure satisfactory consolidation.
nplate, t be 4 inch	31.	Provide reinforcement for concrete curb as shown on the Drawings. Reinforcement shall be kept clean and free from objectionable rust. Bends or kinks in reinforcing bars shall be corrected before placing. All reinforcement shall be accurately located in forms and securely
raffic d hardened,		held in place before and during concrete placing, by supports adequate to prevent displacement during the course of construction.
e Irives	32.	The concrete curb surface shall be struck off the required cross—section with a template. After the concrete curb has been floated to an even surface, the contraction joint shall be cut and all slab edges rounded with a 1/2 inch radius edging tool that will finish to a width of 2 inches. After the concrete has slightly set, a broom shall be brushed lightly across the surface parallel to forms so as to impart a rough finish.
ENT SPECIFICATIONS	33.	
ements, curb and ading dock areas,	34.	
section		line and in runs of curb at intervals of stated of 400 feet. Isolation joints shall be 1" thick pre-formed joint filler strips. The strips shall extend the full depth of the concrete curb section. Isolation joints shall be placed in curb at the end of each days pour and when abutting previously poured curb.
О.Т.)	35.	The curing compound shall be white membrane type and comply with ASTM C-309. It shall not allow a moisture loss of more than 0.055 gr/sq/cm when applied at 200 sq/ft/gal.
02 of	36.	All contraction joints in concrete curb sections shall be sealed with either hot poured joint sealer or cold applied joint sealer.
8.02	37.	Slightly underfill joint groove with joint sealer to prevent extrusion of the sealer. Remove excess joint sealer materials as soon after sealing as possible.
aterials tificates ients.	38.	Freshly placed concrete shall be protected as required to maintain the temperature of the concrete at not less than 50 degrees F. nor more than 80 degrees F. and in a moist condition continuously for the period of time necessary for the concrete to cure. Changes in temperature of the concrete during curing shall be as uniform as possible and shall not
b mix— designs	.39	exceed 5 degrees F. in any one hour, nor 50 degrees F. in any 24 hour period. Cold weather protection: When the temperature of the atmosphere
cular application. vide the following:	00.	is 40-degrees F. and below, the concrete shall be protected by heating, insulation covering, or combination thereof as required to maintain the
as indicated on plans.	40	temperature of the concrete at or above 50-degrees F. and in a moist condition continuously for the concrete curing period. Cold weather protection shall meet the requirements of ACI 306R "Cold Weather Concreting".
concrete	40.	Hot Weather Protection: When the temperature of the atmosphere is 90—degrees F. and above, or during other climatic conditions which will cause too rapid drying of the concrete, the concrete shall be protected
samples. above		by windbreaks, shading, fog spraying light colored moisture retaining covering, or a combination of thereof as required to maintain the temperature of the concrete below 80—degree F. and in a moist condition continuously for the concrete curing period. Hot weather protection shall meet the requirements of ACI 305R "Hot Weather Concreting"
ent,	41.	All forms, rails and stakes shall be removed within 24 hours after placing the curb.
strong is used n the	42.	After completion of concrete curbing in an area, remove all weather protection materials, rubbish and debris resulting from specified work, sweep concrete curbs clean, and seal joints.
-260.	43.	All cement used in sidewalk construction shall be Portland Cement, Type I or IA ASTM C-150.
o Owner. 9 by a 1 ready— n description	44.	All new walks and concrete pavements shall be placed only on a prepared subgrade, smoothed and leveled to the grades established by the Engineer. In clay soils the subgrade shall be excavated 2—inches below the sidewalk base and filled with approved sand meeting MDOT Class II, Sand Designation.
fications ar in scope d by the Owner.	45.	Construct concrete surface course only when ground temperature is above 35 degrees F. and base is dry.
eady—Mixed e Geotechnical ry weights of e aggregates	46.	Sidewalks shall pitch toward the street or away from buildings with a required cross slope of 1/4—inch per foot of width. In some extreme cases, as determined by the Engineer, the cross—slope may be increased but in no case shall it be less than 3/16—inch per foot of width.
f water crete. e Geotechnical cted will	47.	Prior to placing the concrete, all debris, stones, dirt, etc., shall be removed from the subgrade. The subgrade shall be moistened with water in such a manner as to thoroughly wet the material without forming puddles or pockets of water. No concrete shall be placed on frozen subgrade.
ns are obtained, imum specified. each n accordance	48.	Forms shall be metal or wood and of an approved section. They shall be straight, free from distortion and shall show no vertical variation greater than 1/8—inch in 10—foot lengths from the true plane surface on the top of the forms when tested with a 10—foot straightedge, and
red in nmended prete,"		shall show no lateral variation greater than 1/4-inch in 10-feet from the true plane surface of the lateral face of the form when tested with a 10-foot straightedge. They shall be of the depth specified for the sidewalk, or concrete pavement per plane and details, and be securely held in place and true to line and grade.
oint of	49.	
added ch.		vibrated so that the forms are entirely filled and the concrete thoroughly consolidated. The slabs shall be placed in sections or blocks in one operation as a monolith.
content fied.	50.	The concrete surface shall be struck off to a plane surface with a straightedge. After the concrete has been floated to an even surface,
nours or nes first, d ates.		the contraction joint shall be cut and all slab edges rounded with a 1/2—inch radius edging tool that will finish to a width of 2—inches. After the concrete has slightly set, a broom shall be brushed lightly across the surface at right angles to forms so as to impart a rough finish.
pr under ne time	51.	Contraction joints shall be placed at right angles to the edge of the sidewalk or concrete pavement and perpendicular to the surface and at a depth of at least $1/4$ the slab thickness with a minimum depth of $1-1/4$ -inches for sidewalks and 3-inches for concrete pavement slabs.
ees F. rees F. n ACI 306R	52.	Contraction joints in sidewalks shall be spaced at a minimum of every 5—feet, or as shown on the plans.
nitted to quick F. and over,	53.	Isolation papers shall be of the pre-molded, non-extruding, asphalt impregnated type, not less than 1/2-inch thick. The length shall be equal to the width of the slab, and the depth equal to the thickness of the slab plus 1-inch.
t the point of Weather Concreting."	54.	lsolation joints shall be placed at the following location for sidewalks and concrete pavements:
street pavement, f—way.		A. At the back of the curb and front edge of the sidewalks and pavement slabs adjacent to each driveway approach and service walk.
Deformed Billet — Steel Bars: 5 gauge.		<ul> <li>B. At intervals not to exceed 50-feet in all public sidewalks.</li> <li>C. At the back of the curb where the ramps extend from the key flag to the pavement.</li> </ul>
contained in and other reinforcing bars.		D. Between the key flag and the ramp in all cases, except where there are existing expansion joints at the intersections of the sidewalks and the key flag.
feet, the		slaewalks and the key flag. E. At any place where a sidewalk or concrete pavement abuts a building or fixed structure.
eel forms shall be of be so constructed d to the outside forms		F. At any other locations indicated on the Plan.
d to the outside forms. mooth and	55.	Contraction joints in the concrete pavement in the loading area will be as follows:
orms when		A. Transverse joints shall be at 10—foot intervals or as shown on plans and details.
ely stake and ith earth		B. Longitudinal joints shall be at 12-foot intervals or as shown on plans and details.
paraffin	56.	Prior to applying joint sealer, clean joint groove of foreign matter and loose particles, and dry surface.

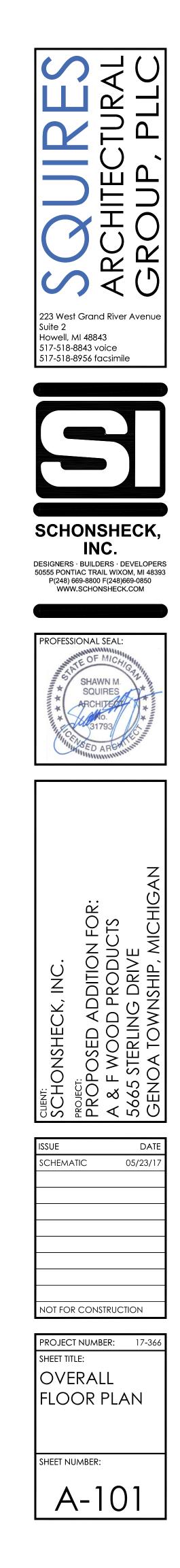
SECTION 02650 - TRAFFIC LANE AND PARKING LOT MARKING

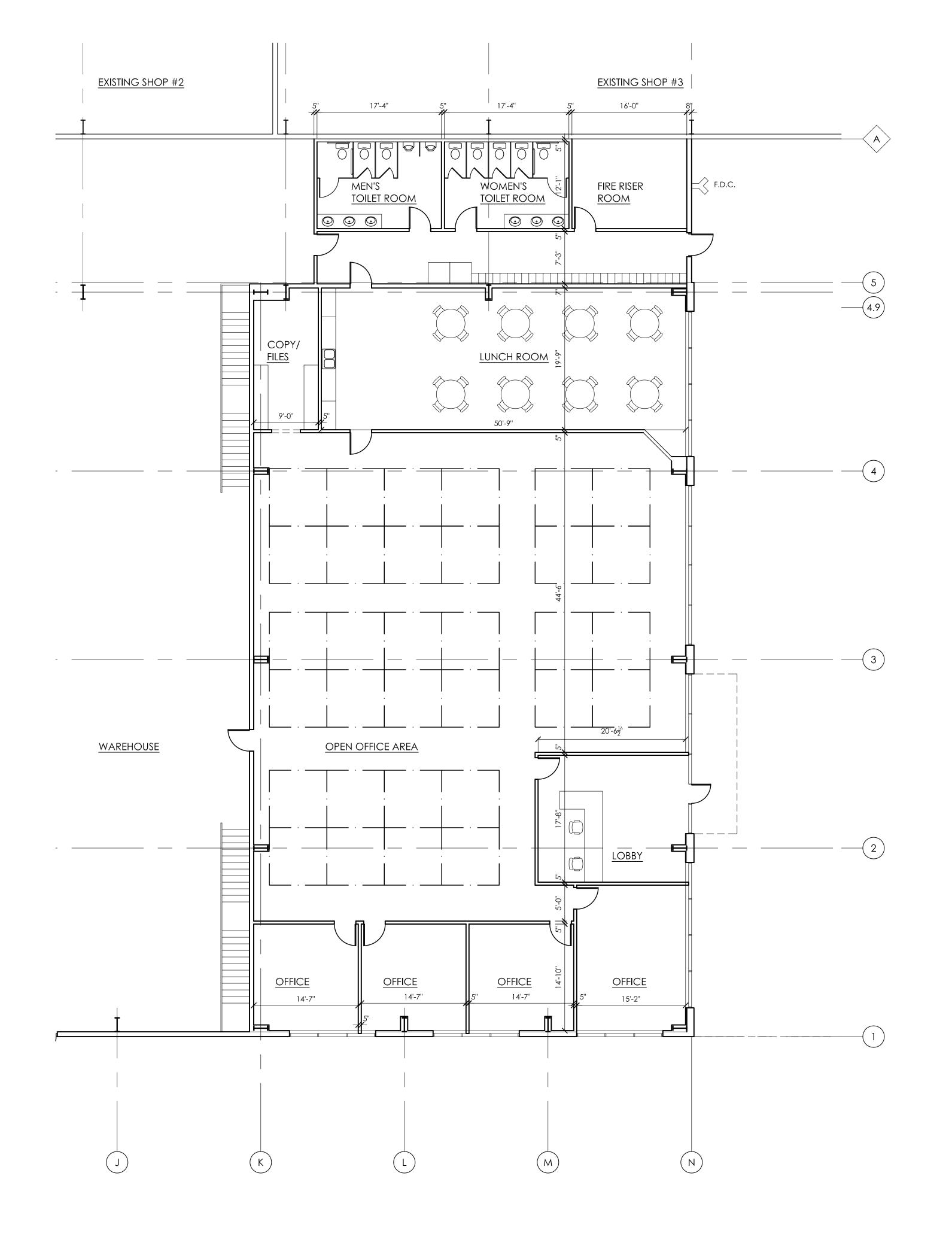
- Provide all materials, labor, equipment, and services necessary to 1. complete all traffic lane and parking lot markings as indicated in the Construction Documents.
- Work includes, but not limited to painting of letters, markings, stripes and islands on the pavement surface applied in accordance with this Specification and at the locations shown on the Plans or as directed by the Engineer.
- 3. The paint shall meet the requirements of Federal Specification TT-P-115C(3), with or without reflectorized beads as required on the Plans.
- 4. Color shall be as Specified on the Plans or as follows: A. Traffic lane striping shall be white or yellow reflectorized,
  - as shown on the Plans.
  - B. Traffic marking and curb faces shall be white unless noted otherwise
  - C. Parking lot striping shall be white, unless noted otherwise. D. Handicap stall striping meeting current ADA requirements
- shall be blue unless noted otherwise. 5. The painting shall be performed only when the existing surface is dry
- and clean, when the atmospheric temperature is above 40-degrees F and when the weather is not excessively windy, dusty or foggy.
- 6. All equipment for the Work shall be approved by the Contractor and shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, and such auxiliary hand painting equipment as may be necessary to satisfactorily complete the job.
- 7. The mechanical marker shall be an approved atomizing spray-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall be designed so as to apply markings of uniform cross-sections and clear-cut edges without running or spattering and within the I limits for straightness set forth herein. When needed, a dispenser shall be furnished, which is properly designed for attachment to the mechanical marker and suitable for dispensing the required quantity of reflective beads.
- Suitable adjustments shall be provided on the sprayer/sprayers of a single machine or by furnishing additional equipment for painting the width required.
- Immediately before application of the paint, the existing surface shall be dry and entirely free from dirt, grease, oil, acids, debris, or other foreign matter which would reduce the bond between the coat of paint and the pavement. The surface shall be thoroughly cleaned by sweeping and blowing as required to remove all dirt, debris and loose materials. Areas which cannot be satisfactorily cleaned by brooming and blowing shall be scrubbed as directed with a water solution of tri-sodium phosphate (10%Na3PO4 by weight) or an approved equal solution. After scrubbing, the solution shall be rinsed off and the surface dried prior to painting.
- 10. Existing markings or stripes which are to be abandoned or removed shall be obliterated or obscured by the best methods suited for the purpose and to the satisfaction of the Owner or Owners Representative.
- 11. The Contractor is responsible for laying out a sample section of striping which is to be approved by the Owner or Owners Representative as to quality before the Contractor may proceed with the striping. The Contractor is to insure that all subsequent striping meets the quality of the approved sample application.
- 12. On those sections of pavements where no previously applied figures, markings, or stripes are available to serve as a guide, suitable layouts and lines of proposed stripes shall be spotted in advance of the paint application. Control points shall be spaced at such intervals as will ensure accurate location of all markings.
- 13. The Contractor shall provide an experienced Technician to supervise the location alignment, layout, dimensions and application of the paint.
- Markings shall be applied at the locations and to the dimensions and 14 spacing indicated on the Plans or as specified. Paint shall not be applied until the indicated alignment is laid out and the conditions of the existing surface have been approved by the Owner or
- 15. The paint shall be mixed in accordance with the manufacturer's instructions before application. The paint shall be thoroughly mixed and applied to the surface of the pavement with the marking machine at its original consistency without the addition of thinner. If the paint is applied by brush, the surface shall receive two (2) coats; the first coat shall be thoroughly dry before the second coat is applied.
- 16. A minimum of one (1) week shall elapse between application of the bituminous seal coat, slurry seal or the placement of the bituminous surface course and the marking of the pavement. The paint shall not bleed excessively, curl, or discolor when applied to bituminous or concrete surfaces.
- 17. In the application of straight stripes, any deviation in the edges exceeding 1/2-inch in 50-feet shall be obliterated and the marking corrected. The width of the markings shall be as designated within a tolerance of 5 percent (5%). All painting shall be performed to the satisfaction of the Owner or Owners Representative by competent and experienced Equipment Operators, Laborers, and Artisans in a neat and workmanlike manner.
- 18. Paint shall be applied uniformly by suitable equipment at a rate of 0.0094 gal./s.f. for stencils and 0.00313 gal./ft. for striping. Paint application shall produce an average wet film thickness of 0.015-inches.
- 19. After applications of the paint, all markings shall be protected while the paint is drying. The fresh paint shall be protected from injury or damage of any kind. The Contractor shall be directly responsible and shall erect or place suitable warning signs, flags, or barricades, protective screens or coverings as required. All surfaces shall be protected from disfiguration by spatter, splashes, spillage, drippings of paint or other material.

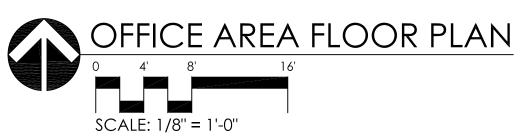
	NEERS · SUR ARCI 638	ociates	
		Ŋ	
	SPECIFICATIONS	ADDITION FOR: A&F WOOD PRODUCTS PART OF NE 1/4, SEC. 15, T2N-R5E GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	
LE C	DAIE 5/23/17 5/24/2017		
	REVISED PER REVIEW COMMENTS		
	FIELD : D V. SCALE SCALE: JOB# : DRWG. b CHECK : DATE : 5 17-046_( SHEET :	N/A N/A 17-046 y :DC	





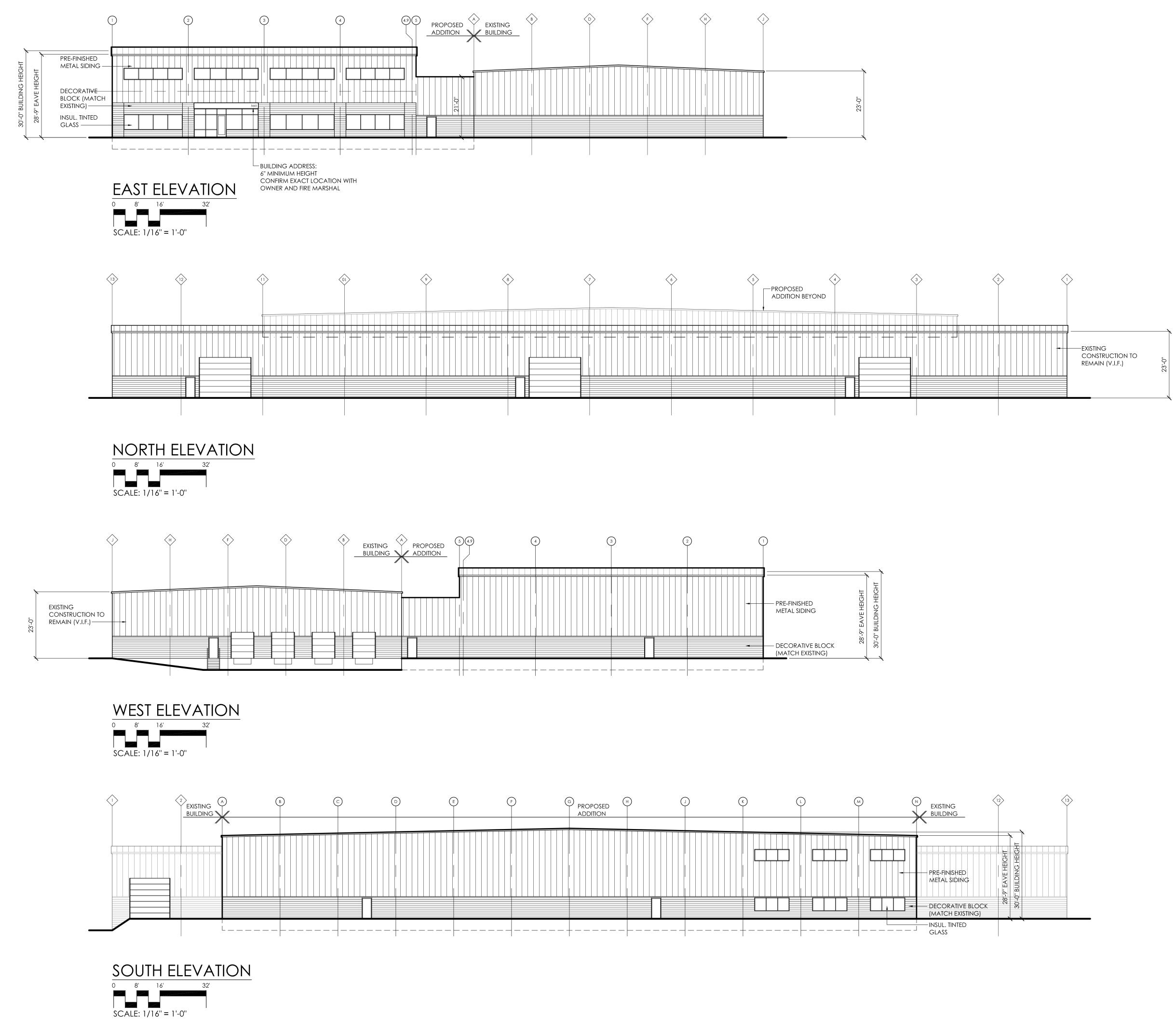






 $\mathbf{N}$ 223 West Grand River Avenue Suite 2 Howell, MI 48843 517-518-8843 voice 517-518-8956 facsimile SCHONSHECK, INC. DESIGNERS · BUILDERS · DEVELOPERS 50555 PONTIAC TRAIL WIXOM, MI 48393 P(248) 669-8800 F(248)669-0850 WWW.SCHONSHECK.COM PROFESSIONAL SEAL: SHAWN M. SQUIRES ) ADDITION FOR: DD PRODUCTS ING DRIVE WNSHIP, MICHIG AICHIG CLIENT: SCHONSHECK, INC. PROPOSED ADDITION A & F WOOD PRODU 5665 STERLING DRIVE GENOA TOWNSHIP, A ÍĒRI ÓC ÍĒRI ISSUE DATE 05/23/17 Schematic NOT FOR CONSTRUCTION PROJECT NUMBER: 17-366 SHEET TITLE: OFFICE AREA FLOOR PLAN SHEET NUMBER:

A-102



EXTERIOR WALL MATERIALS:

GROSS AREA	3,386 SF	
LESS DOORS/WINDOWS	892 SF	
NET AREA	2,494 SF	
DECORATIVE BLOCK METAL SIDING	817 SF 1,677 SF	(33%) (67%)



Suite 2 Howell, MI 48843 517-518-8843 voice 517-518-8956 facsimile





DESIGNERS · BUILDERS · DEVELOPERS 50555 PONTIAC TRAIL WIXOM, MI 48393 P(248) 669-8800 F(248)669-0850 WWW.SCHONSHECK.COM





ISSUE	DATE
SCHEMATIC	05/23/17
NOT FOR CONSTRU	ICTION

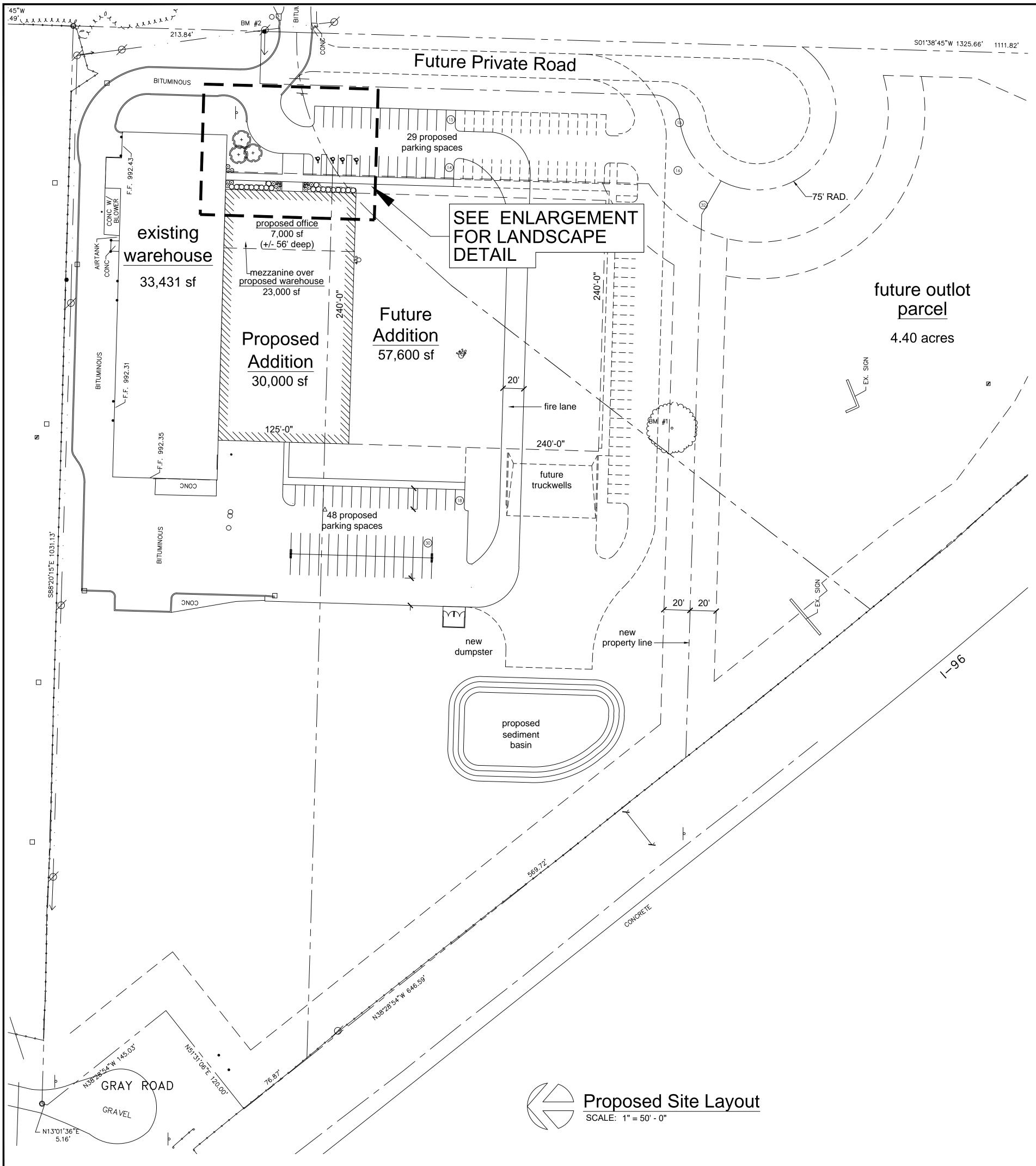
PROJECT NUMBER:	17-366
SHEET TITLE:	
BUILDING	
ELEVATION	S
SHEET NUMBER:	
SHEET NOWBER.	
	1
A-ZU	

EXTERIOR WALL MATER	rials:
GROSS AREA	3,386 SF
	10.05

LESS DOORS/WINDOWS	48 SF	
NET AREA	3,338 SF	
DECORATIVE BLOCK	1,365 SF	(41%
METAL SIDING	1,973 SF	(59%

EXTERIOR WALL MATERIALS:
--------------------------

gross area	7,080 SF	
LESS DOORS/WINDOWS	360 SF	
NET AREA	6,720 SF	
DECORATIVE BLOCK METAL SIDING	1,624 SF 5,096 SF	(24%) (76%)



# General Landscape Notes:

1. The contractor(s) shall verify the location of all underground utilities prior to construction.

2. See detail B on sheet L—2 for protection of existing plant material that is to be saved. Refer to Engineering drawings for location and species of plant material to be saved.

3. All landscape areas to be grass common to region except where other plant material is called for.

4. Shrubs are to be planted in mulch beds with spade bed edge separating mulch from turf grass areas. See detail A sheet L—2

5. Any landscape areas disturbed by construction shall be scarified to a depth of 2", graded smooth to allow for positive drainage. For any landscape area so designated to remain whether on or off site, remove weeds, rocks construction items, etc., scarify area, re-seed and fertilize. All R.O.W. curb and gutters are to be cleaned of debris.

6. Lawn see mix: a. 50% creeping red fescue (Festuca rubra variety). b. 30% Kentucky blue grass (Poa pretensis). c. 20% perennial rye grass (Lolium perenne). Contractor shall re-seed any areas that have not germinated in the spring or fall following initial seeding.

7. The Contractor shall provide a <u>WATER PERMEABLE WEED MAT</u> for all planting beds. 8. Plants shall conform to the sizes as shown on the drawings and shall be of sound health. All measurements such as spread, ball size, height, caliper and quality designations shall be in conformance to the latest edition of the American Standards for Nursery Stock. All plant material shall be hardy to the Grand Traverse area, be free of disease and insects, and conform to the American Standard for Nursery Stock of the American Nurserymen.

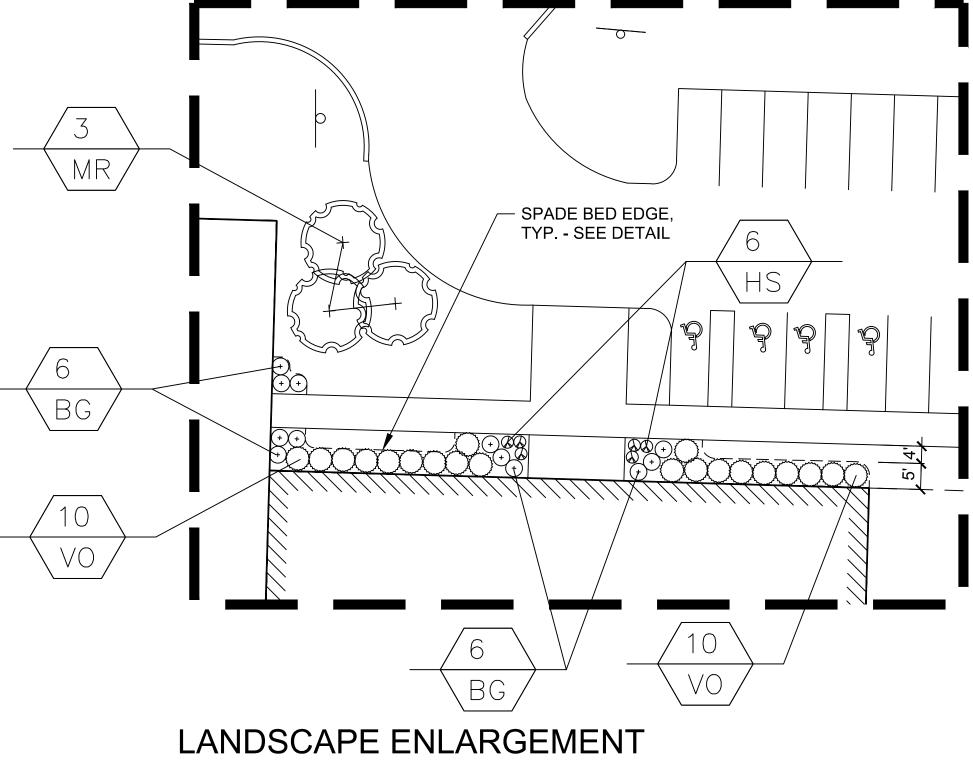
9. Prune all dead and broken branches from all plants immediately after installation.

10. Planting soil mixture shall be prepared on—site by mixing 3 parts topsoil to 1 part existing site soils to 1 part peat, adding 5 lbs. of superphosphate to each cubic yard of the mixture.

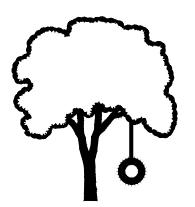
11. Organic mulch requirements: shade trees, ornamental trees and evergreen trees - 6" of shredded bark; shrubs and shrub beds - 4" of shredded bark; perennial flowers - 2" of shredded bark.

12. All Landscaping shall be maintained in a healthy, neat and orderly state following installation. Any and all plant material that dies or becomes diseased, shall be replaced within six months.

13. See Sheet L-2 for Plant List and Planting Details.

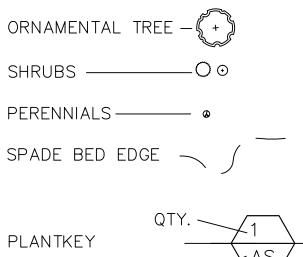


SCALE: 1" = 20'



Design Solutions LLC Landscape Architects & Planners 2580 Dustin RD Okemos, MI 48864 517 333-7026

## Legend



SPECIES -



517-518-8843 voice 517-518-8956 facsimile

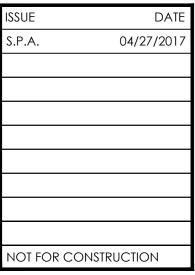


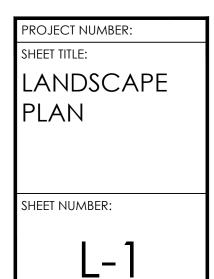
SCHONSHECK, INC. DESIGNERS · BUILDERS · DEVELOPERS

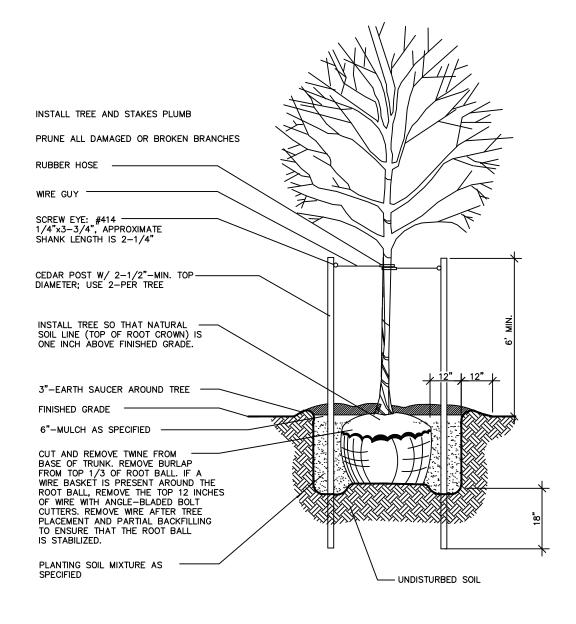
50555 PONTIAC TRAIL WIXOM, MI 48393 P(248) 669-8800 F(248)669-0850 WWW.SCHONSHECK.COM







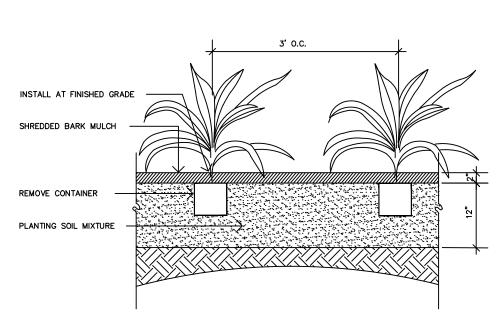




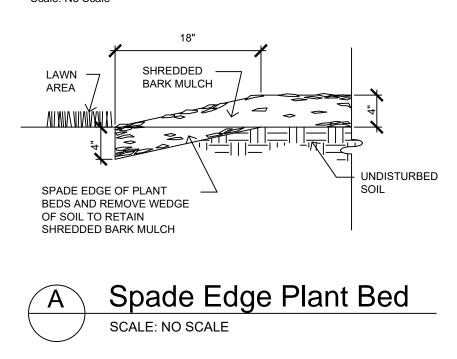
# Deciduous Tree Planting/Staking

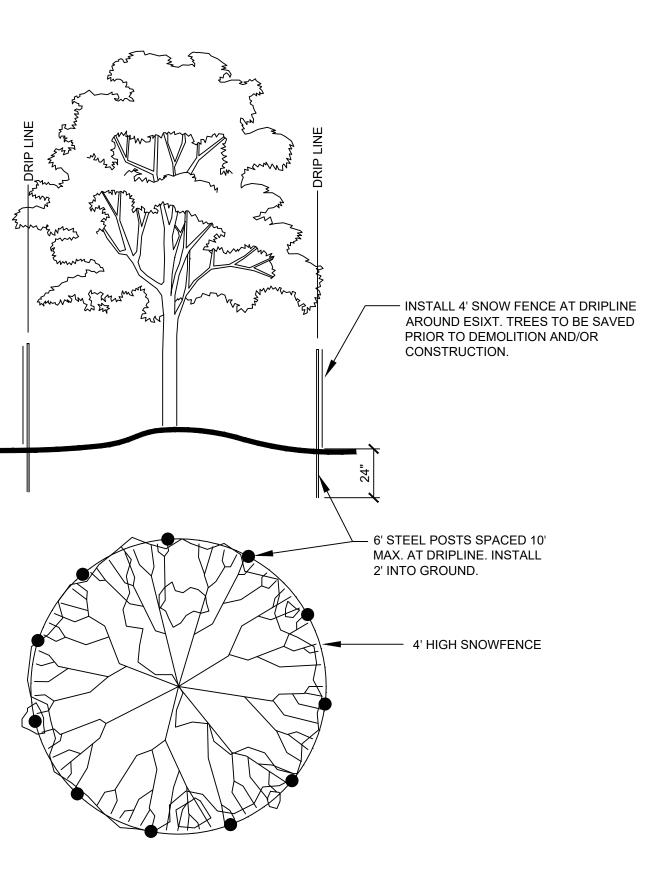
PRUNE ALL DAMAGED, BROKEN NSTALL SHRUB SO THAT NATURAL SOIL LINE (TOP OF ROOT CROWN) ONE INCH ABOVE FINISHED GRADE. 4" MULCH AS SPECIFIED DO NOT PLACE AGAINST TRUNK 4" MULCH AS SPECIFIED DO NOT PLACE AGAINST TRUNK 4" MULCH AS SPECIFIED DO NOT PLACE AGAINST TRUNK 4" MULCH AS SPECIFIED DO NOT PLACE AGAINST TRUNK 4" MULCH AS SPECIFIED 6" MIN. SZE OF PLANT PIT VARIES BASED ON SIZE OF ROOT BALL LIMIT OF BARE ROOT SPREAD

Shrub Planting Detail



## Perennials - Container Plantings Scale: No Scale



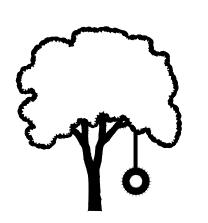


## B TREE PROTECTION DETAIL SCALE: NO SCALE

PLANT LIST

			Size						
Qty.	Key	Botanical Name	Common Name	Caliper	Height	Spread	Other	Root	Remarks
Trees	Trees								
3	MR	Malus 'Royal Raindrops'	Royal Raindrops Crabapple	2"				B&B	
Shru	Shrubs								
12	BG	Buxus x. 'Green Velvet'	Green Velvet Boxwood		24"			B&B	
20	VO	Viburnum opulus 'Compactum'	Comp. European Cranberrybush		24"			B&B	
Gras	Grasses / Perennials								
6	HS	Hemerocallis Stella D'Oro	Stella D'Oro Daylilly				Gal.	Cont.	
						1			

B&B = Balled & Burlapped



Design Solutions LLC Landscape Architects & Planners 2580 Dustin RD Okemos, MI 48864 517 333-7026

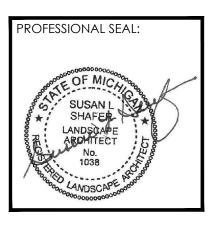


Howell, MI 48843 517-518-8843 voice 517-518-8956 facsimile





0555 PONTIAC TRAIL WIXOM, MI 48393 P(248) 669-8800 F(248)669-0850 WWW.SCHONSHECK.COM

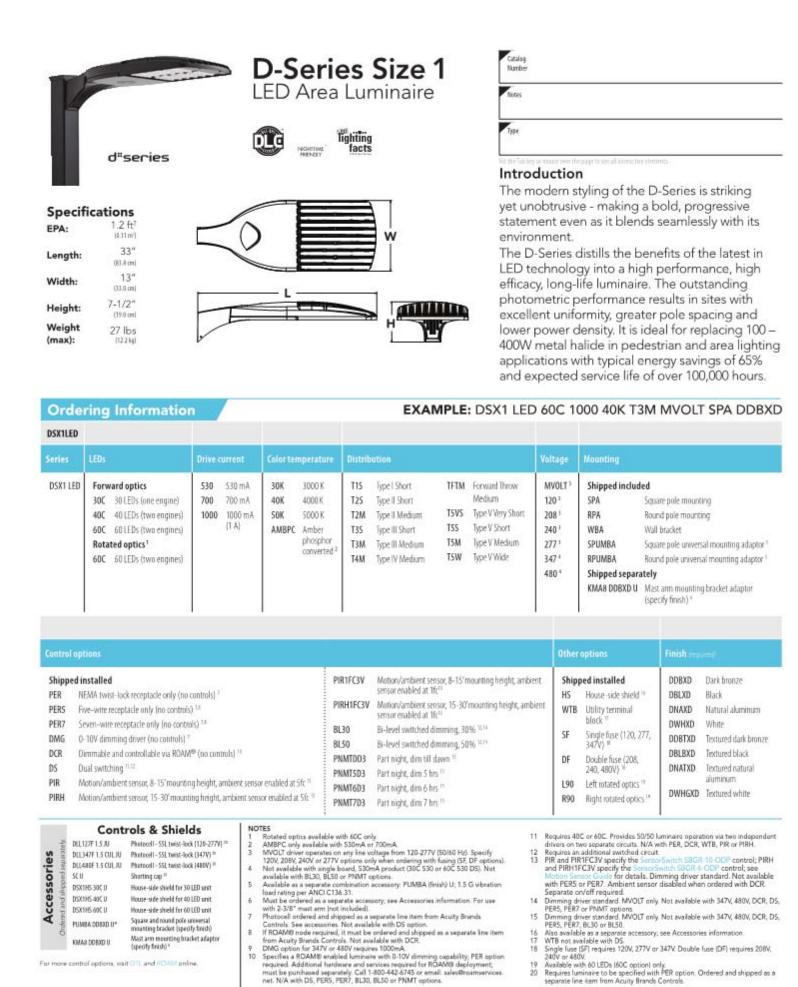




ISSUE	DATE
S.P.A.	04/27/2017
NOT FOR CONST	RUCTION



Cont. = Container Gal. = Gallon



LITHONIA LIGHTING



D-Series Size 1	
LED Wall Luminaire	
Norther Tighting	

13-3/4"

(10.2 cm)

6-3/8"

Weight

ELCW

Weight:

10 lbs

© 2011-2015 Acuity Brands Lighting, Inc. All rights reserved.

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

## Specifications

d"series

Ordering Information

Back Box (BBW, ELCW) Luminaire Height:

conduit (BBW only)

e 1	Catalog Number	
е	Notes	
	Type	

## Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance. With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSX1-LED Rev. 10/27/15 Page 1 of 4

DSXW1 LED DSXW1 LED 10C 10 LEDs 350 350 mA 30K 3000 K Shipped included Shipped installed DDBXD Dark installed bronze 530 530 mA 40K 4000 K 120 1 (blank) Surface Photoelectr engine) T2M Type II cell, button Single fuse DBLXD Black 700 700 mA 50K 5000 K mounting 2081 20C 201EDs type 4 (120, 277) bracket Medium 2401 DNAXD Natural Itwo 1000 1000 mA AMBPC Amber 347V) T3S Type III 277 1 DMG 0-10V dim BBW Surfacealuminum phosphor (1 A) ming driver ( controls) Double fuse (208, 240 or 480V) 7 converted mounted DWHXD White Short back box DSSXD Sandstone T3M Type III 180° motion 4801 {for conduit DDBTXD Textured ambient light House-side Medium entry) sensor, <13 mtg ht 1 shield T4M Type IV bronze SPD Separate Mediu PIRH 180° motion DBLBXD Textured 59/02 TFTM Forward ambient light protection black sensor, 15-3 mtg ht <sup>s</sup> Throw DNATXD Textured ELCW Emergency battery backup (includes exter-nal common Shipped Medium natural separately ASYDF Asymaluminum BSW Bird-determetrix DWHGXD Textured rent spikes diffi nal component white enclosure)\* WG Wire guard DSSTXD Textured VG Vandal guard sandstone DDL Diffused drop lens

- 1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocentral (PE option).
- 2 Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH. Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
- 4 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH). 5 PIR specifies the Sensor Switch SBGR-10-ODP control; PIRH specifies the Sensor Switch SBGR-6-ODP control; see Motion Sensor Guide for details, Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with 20 LED/1000 mA configuration
- (DSXW1 LED 20C 1000). 6 Cold weather I-20C) rated. Not compatible with conduit entry applications. Not available with 3BW mounting option. Not available with fusing. Not available
- with 347 or 480 voltage options. Emergency components located in back box housing. Emergency mode IES files located on product page at www.ithoria.co Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option. Not available with ELCW.
- 8 Also available as a separate accessory; see Accessories information 9 See the electrical section on page 3 for more details.

LITHONIA LIGHTING

One Lithonia Way • Convers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com @ 2013-2015 Acuity Brands Lighting, Inc. All rights reserved

Accessories

DSXWHS U House-side shield (one per light engine

DSXWBSW/U Bird-deterrent spikes

DSXW1WG U Wire guard accessory

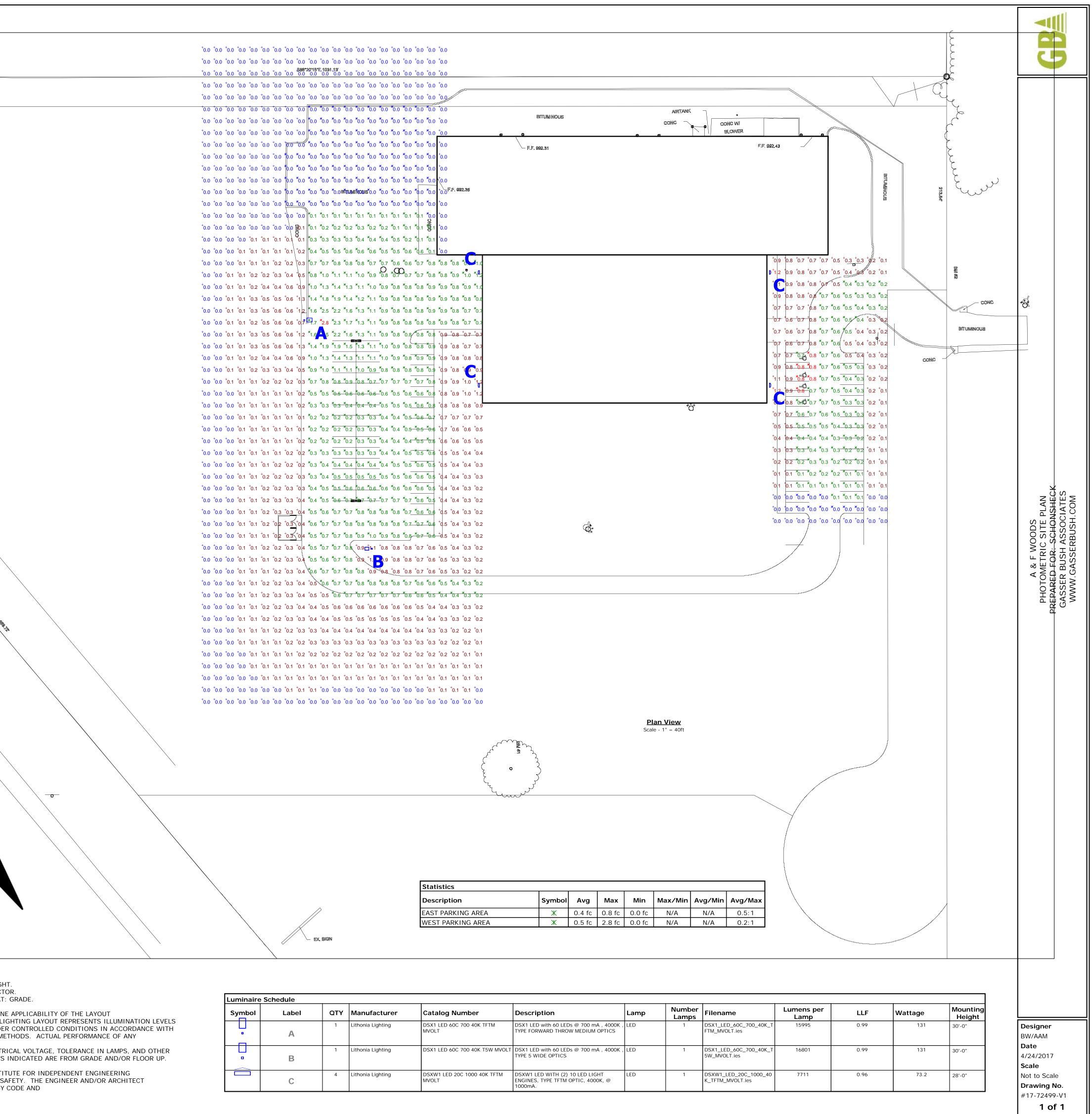
DSXWTVG U Vandal guard accessory

GENERAL NOTE 1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT. 2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR. 3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: GRADE.

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.





Statistics					
Description	Symbol	Αv			
EAST PARKING AREA	Ж	0.4			
WEST PARKING AREA	Ж	0.5			

Symbol	Label	ΟΤΥ	Manufacturer	Catalog Number	Description
•	А	1	Lithonia Lighting	DSX1 LED 60C 700 40K TFTM MVOLT	DSX1 LED with 60 LEDs @ 70 TYPE FORWARD THROW MED
	В	1	Lithonia Lighting	DSX1 LED 60C 700 40K T5W MVOLT	DSX1 LED with 60 LEDs @ 70 TYPE 5 WIDE OPTICS
	С	4	Lithonia Lighting	DSXW1 LED 20C 1000 40K TFTM MVOLT	DSXW1 LED WITH (2) 10 LED ENGINES, TYPE TFTM OPTIC, 1000mA.





















### GENOA CHARTER TOWNSHIP PLANNING COMMISSION PUBLIC HEARING May 8, 2017 6:30 P.M. MINUTES

<u>CALL TO ORDER</u>: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, James Mortensen, Chris Grajek, John McManus, Eric Rauch, Jill Rickard and Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager and an audience of 3.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

<u>APPROVAL OF AGENDA:</u> **Moved** by Commissioner Figurski, seconded by Commissioner McManus, to approve the agenda as presented. **The motion carried unanimously.** 

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

**OPEN PUBLIC HEARING #1...** Review of a sketch plan for an additional wall sign for Jeff's Fireworks located at 1512 Lawson Road, Howell. The property is located within the Genoa 24 Grand PUD. The request is petitioned by Phillips Sign and Lighting.

Planning Commission disposition of petition:

A. Disposition of sketch plan. (04-05-17)

Ms. VanMarter stated the applicant is requesting a second wall sign for a new tenant in a building in the Genoa Square Development. Per the ordinance, the Planning Commission can grant a second wall sign where additional visibility is warranted; however, the signs must share the 100 square foot maximum allowed.

She noted that the PUD allows tenants located in the outlots a second sign, which would be located on the rear of the building, so this could potentially be a third wall sign for this tenant.

Commissioner Mortensen noted that there would never be another building developed to the east of this building, so this could be considered a corner tenant. Commissioner Rauch agrees. He is in support of allowing the sign.

Commissioner Figurski stated the tenant could have a sign on the monument sign located in the front of this development instead of on the wall.

Rebecca Godin, of Phillips Sign and Lighting, was presented. She stated that the monument sign would not meet her client's needs because cars park in front of it. The proposed sign would be above the tree line and visible from the I-96 exit ramp.

The call to the public was made at 6:50 pm with no response.

**Moved** by Commissioner McManus, seconded by Commissioner Rauch, to approve the sketch plan dated April 5, 2017 for an additional wall sign for Jeff's Fireworks located at 1512 Lawson Road conditioned upon all requirements of the ordinance be met. This approval is based on the following:

- The Planning Commission interprets that this is a corner lot because there will not be any further development to the east.
- There is a curve approaching the building from I-96 and it makes sense that there would be two signs to increase invisibility.
- The current monument sign is not sufficient to alleviate the fact that the current wall sign is not visible from some points on Grand River.

## The motion carried unanimously.

## Administrative Business:

• Staff Report

Ms. VanMarter stated there will be a June meeting with one new item and the return of Hampton Inn and Suites.

There was a discussion regarding the proposed development at Latson and Grand Oaks Drive that was previously tabled. The Planning Commission would like the property owner to be involved in the discussion.

• Approval of the April 10, 2017 Planning Commission meeting minutes

**Moved** by Commissioner Figurski, seconded by Commissioner McManus, to approve the minutes of the April 10, 2017 Planning Commission Meeting as presented. **The motion carried unanimously.** 

Member Discussion

None

Adjournment

**Moved** by Commissioner McManus, seconded by Commissioner Figurski, to adjourn the meeting at 7:09 pm. **The motion carried unanimously.**