

## **Planning Commission**

Charter Township of Plymouth, MI

## Wednesday, May 3, 2023

Special Meeting of the Planning Commission 7:00 PM · Township Municipal Offices

AGENDA  Meeting called to order at PM	Remote Viewing  www.bit.ly/PlymouthLiveStreams  Sign up for Notifications  www.plymouthtwp.org/enotify  Current Project Plans  www.plymouthtwp.org/government/departn /community_development/current_projects.	
1 D H C H		
1. Roll Call:		
Dennis Cebulski, Chairpe Kendra Barberena, Vice- Gail Grieger, Secretary Bob Doroshewitz, Truste	Chairperson James I John Its	Berry
2. Approval of the Agenda: May	y 3, 2023	
Moved by:	Supported by:	
3. Approval of the Minutes: Not	ne	
4. Public Comment (for non-age	enda items – maximum of three minutes per ind	lividual)
5. Public Hearing(s): None		

#### 6. New Business:

v.	TICH Du	Silicss.	
	A.	PC# 2478	Northville Downs of Plymouth – PUD Development Plan
		Applicant:	PEA Group, on behalf of Northville Downs
		Address:	Southwest corner of 5 Mile and Ridge Roads
		Tax ID(s):	R-78-001-99-0001-704, R-78-001-01-0001-000, R-78-001-01-
			0002-000, R-78-001-01-0003-000, R-78-001-01-0004-000, R-78-
			001-01-0005-000, R-78-001-01-0006-000, R-78-001-01-0007-
			000, and R-78-001-01-0008-000
		Zoning:	IND, Industrial District
		Action Requested:	-
		Motion:	Moved by:
			Support by:
			Action Taken:
		Commissioner Discu	ssion Notes:
7.	Unfinis	hed Business: None	
8.	Miscella	aneous Business / Con	mmunication: None
9.	Commi	ssioner Comments	
10	. Adjour	nment: Meeting adjou	rned at PM
	Moved 1	oy:	Supported by:

Next Meeting: May 17, 2023 at 7:00 PM

<u>PLEASE TAKE NOTE:</u> Plymouth Township will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio tapes of printed materials being considered at all Township meetings, to individuals with disabilities at the meetings/hearings upon two weeks' notice to the Township by writing or calling the following: Human Resources, 9955 N. Haggerty Road, Plymouth, MI 48170; (734) 354-3202 TDD units: 1-800-649-3777 (MI Relay Services).

The public is invited and encouraged to attend all meetings of the Plymouth Planning Commission.

Action Taken: \_\_\_\_\_

#### MCKENNA



April 28, 2023

Planning Commission Charter Township of Plymouth 9955 N. Haggerty Road Plymouth, Michigan 48170

Subject: #2478 - Northville Downs of Plymouth: Planned Unit Development (PUD) Site Development

Plan - Review #1

Parcel IDs: R-78-001-99-0001-704, R-78-001-01-0001-000, R-78-001-01-0002-000, R-78-001-01-0003-000, R-78-001-01-0004-000, R-78-001-01-0005-000, R-78-001-01-0006-000, R-78-001-01-0007-000, R-78-001-01-0008-000

Dear Planning Commissioners,

We have reviewed the Planned Unit Development (PUD) Site Development Plan submitted by PEA Group Engineering and Northville Downs (the current property owner, "Applicant"). The proposed Project is for a new horseracing track facility and involves the relocation of the current Northville Downs racetrack (in the City of Northville) to the Plymouth community.

The proposed development ("Project") is located at the southwest corner of the Ridge Road and Five Mile Road intersection on approximately 125 acres (see Google aerial below) and is bordered to the north by the Chesapeake and Ohio Railroad (CSX) and to the west by the Johnson Drain. Previously, an industrial park called the Ridge 5 Corporate Park was planned for the site and the site was partially cleared, as shown below in the aerial – this project has since been withdrawn. The site is also part of the Michigan International Technology Center (MITC), which is a joint effort between Plymouth and Northville Townships (<a href="https://www.mitc-usa.org/">https://www.mitc-usa.org/</a>).





## Project Background and the PUD Process

#### **PROJECT HISTORY**

The Carlo family (the Developer) has operated the current Northville Downs racetrack in the City of Northville since 1944, and now intends to relocate the racetrack to the Plymouth community and construct a new facility. In January of 2023, the Northville Downs of Plymouth Planned Unit Development (PUD) proposal was submitted to the Township for review.

#### **PROJECT SUMMARY**

The proposed Project includes the construction of a:

- ½ mile harness racetrack
- ±4,900 sq. ft. grandstand (±480 seats)
- ±23,000 sq. ft. racing building
- ±35,500 sq. ft. horse barn
- ±3,200 sq. ft. maintenance building
- parking and loading areas
- public walking path along Johnson Creek (with access from Ridge Road)

#### **PUD PROCESS**

#### Step #1: Planning Commission Consideration and Public Hearing

The first step for any proposed PUD is to apply for the PUD Option – in essence, the developer is asking the Township for the option to have a PUD on a given site. The PUD Option process precedes any formal site plan application and is an essential step in determining if a site is the appropriate location for a given PUD.

On February 15, 2023, the Planning Commission held a public hearing to discuss the proposal and hear public comment from residents and stakeholders. Following the public hearing on February 15, the Commission made a recommendation to the Board of Trustees for approval of the PUD Option, with conditions.

#### **Step #2: Board of Trustees Consideration**

The PUD Option was then considered by the Board of Trustees on February 28, 2023, after which the Board approved resolution #2023-02-28-14 to approve, with conditions, the PUD Option.

Approval of the PUD Option allowed the Developer 1-year to submit for site development plan approval. The site plan (aka "Development Plan") has since been reviewed by Township staff. The Developer has also submitted a proposed PUD Contract, which is a document that sets forth any special conditions, restrictions, and agreements regarding the property. The PUD Contract is also reviewed by Township staff, including the Township attorney.



#### Step #3: Planning Commission Consideration for the Development Plan - Current Step

The Development Plan and PUD Contract will be presented to the Planning Commission on May 3, 2023, for consideration, then go before the Planning Commission, which would recommend either approval, approval with conditions, or denial to the Board of Trustees.

Step #4: Board of Trustees Consideration for the Final Development Plan and PUD Contract – TBD Once the Planning Commission makes a recommendation, the final Development Plan and PUD Contract will be presented to the Board of Trustees. The Trustees would then vote to approve, approve with conditions, or deny the Development Plan and PUD Contract as submitted.

#### SUMMARY OF THE ENTIRE PUD PROCESS

The flow chart below provides a summary of the key steps in the PUD process; this project is currently at the third stage in the review process:

## **PUD Option**

- Planning Commission Meeting (Feb. 15)
- Public Hearing
- Recommendation to the Board of Trustees

#### **PUD Option**

- Board of Trustees Meeting (Feb. 28)
- Approval or Denial of the PUD Option

#### **PUD Development** Plan

**Current Step** 

- Planning Commission Meeting - Site Plan Review
- Recommendation to the Board of Trustees

#### **PUD Development** Plan

- Board of Trustees Site Plan and PUD Contract Review
- Approval or Denial of the Development

#### **Approved PUD**

• Applicant has 1-year to obtain a permit from the Building Department and start construction



## PUD Development Plan

The Development Plan (the proposed site plan) must meet the requirements for site plan approval (as set forth in section 29.8.2), as well as the specific standards of the Planned Unit Development (PUD) ordinance (section 23.9), which are outlined below:

#### SITE DESIGN (ZONING & USE)

The siting of all structures and all elements of the site design shall be harmoniously and efficiently organized in relation to topography, parcel configuration, adjacent properties, traffic operations, adjacent streets and driveways, pedestrian access, and the type and size of buildings. The site design shall ensure that adequate light and air are preserved so as not to be detrimental to the orderly and harmonious development of the Township.

**Findings:** Per the Zoning Map, the subject site is zoned the Industrial (IND) District with a PUD overlay. A PUD is an alternative method of development that may be permitted only after a public hearing, review and recommendation by the Planning Commission, and approval by the Board of Trustees. The PUD Option was granted by the Board of Trustees in February of 2023 for the proposed horse racetrack facility.

The proposed project is entirely composed of recreational, sport, and entertainment uses, and does not include an industrial component. The location, height, bulk, and character of the proposed Project are generally in line with the Master Plan are not expected to disrupt the orderly development and functioning of adjacent properties. Further, the proposed use of the property is not expected to disrupt neighboring industrial developments in the MITC.

#### SITE APPEARANCE & COORDINATION

Site elements and the relationship between the various uses on the site shall be designed and located so that the proposed development is aesthetically pleasing and harmonious with adjacent existing and prospective development of contiguous properties and the general planning area. All site features, including vehicle and pedestrian circulation, building orientation, landscaping, lighting, utilities, recreation facilities, and open space shall be designed to coordinate with adjacent properties and uses.

**Findings:** The proposed footprint of the use fits within the existing land area that was improved (already graded and cleared) for development during the previously approved Ridge 5 Business Park. Under a PUD, the following dimensional standards apply. The project is in compliance with most dimensional standards, however, some dimensions need to be clarified on the site plan. The proposed dimensions are listed in the following table:

<b>Dimensional Measurement</b>	Required	Proposed	Comments
Min. Lot Area	None	±125 acres	n/a
Max. Lot Coverage	None	Total Impervious Area: 9.93 acres (7.91%) 1.53 acres (1.22%) building coverage 8.40 acres (6.69%) paved surfaces	n/a



<b>Dimensional Measurement</b>	Required	Proposed	Comments
Min. Distance Between Buildings	10-feet, plus +4- feet per story after 2-stories	n/a	Dimensions must be provided, appears to be in compliance.
Max. Building Height	9-stories	Grandstand Building: 3-stories (46-feet) Barn: 1-story (±22 feet) Maintenance Building: 1-story (±20 feet)	In compliance.
Min. Perimeter Yard Setbacks	25-feet	Front (North): ±927 Front (south): ±705 Side (east): ±412 Side (south): ±1,296	Complies. Must be corrected on sheet C-3.0; listed as 50-feet. Setbacks must be measured from the racetrack as well.
Min. Open Space	20% of total land area	Wetlands occupy 52.23 acres, 41.73% of the total site	Complies.

#### PRESERVATION OF SITE FEATURES

The site design shall, to the extent feasible, conserve natural, cultural, historical, and architectural site features, including but not limited to architecturally or historically significant buildings, archeological sites, wetlands, topography and wooded areas.

**Findings:** The PUD Option gives the Developer greater flexibility in conserving open space through sound site planning and reducing impervious surface area. The Project contains numerous protected wetlands and conservation of these natural features to the highest degree possible is desired.

The proposed Project dedicates ±52 acres (41.7%) of the total site to wetlands and woodlands. This is a greater quantity than is required under the Industrial (IND) zoning district, which has no maximum lot coverage percentage. The woodland/wetland area will be open to the public via the walking trail with parking located off Ridge Road, which represents an increase in the amount of recreation land and opportunities in the Township. Additionally, all future parking areas are proposed to be within the already-graded portions of the site. As such, no additional tree removals would occur at the time of construction.

The Project does not contain any manmade features that are historically, culturally, or otherwise significant. Please see additional comments under the Landscaping section.

#### **IMPACT ON PUBLIC SERVICES**

Utility services, including sanitary, water and storm runoff, shall not exceed the existing or planned capacity of such services, and shall be developed in the best interest of the public health, safety and welfare of the community. The proposed development shall be designed and located so that public services, including streets and sidewalks, police and fire protection, and public schools have sufficient capacity to properly serve the development, and so that such services will not be adversely affected by the proposed development.



**Findings:** The site is served by existing utilities from Ridge Road and already has existing underground infrastructure along Techne Drive. Approval of this standard is subject to the Township Fire Chief and Township Engineer; both departments have outstanding items that must be addressed on a revised plan.

#### **VEHICULAR ACCESS & CIRCULATION**

The vehicular circulation system planned for the proposed development shall be in the best interest of the public health, safety, and welfare in regard to on site circulation, onsite parking, the overall circulation of the neighborhood and community, egress/ingress to the site, vehicular turning movements related to parking areas, loading areas, street intersections, street gradient, site distance and potential hazards to the normal flow of traffic both on and off site.

**Findings**: The existing Techne Drive boulevard entrance, which is adequate in width to provide truck access to the site, will be maintained as the primary access to Ridge Road and the site. Overall, the circulation proposed under the Project site plan conforms to the Master Plan objective to "Reduce the potential for vehicular conflicts by keeping the number of curb cuts along major thoroughfares and collector roads to a minimum and encourage the use of shared access points." A secondary entrance off Ridge Road is proposed for emergency access, as well as public access to the trailhead parking lot.

Final approval of the vehicular network is required by the Township Engineer and Fire Department

#### PEDESTRIAN ACCESS & CIRCULATION

The pedestrian circulation system planned for the proposed development shall be in the best interest of the public health, safety and welfare in regards to on site circulation and the overall pedestrian circulation of the neighborhood and community.

**Findings**: The Project includes sidewalks along the perimeter of the racing building, maintenance building, and barn. As a previous condition of approval, a sidewalk from the main entrance on Ridge Road is now provided to the main entrance of the facility. Sheets C-4.4 and C-4.5 show an 8-foot sidewalk along Ridge Road, which was a condition of approval by the PUD Option. The Ridge Road sidewalk should be connected directly to the walking path on-site; currently, a small 2-foot grass patch separates the two segments, presenting a barrier for accessibility.

The proposed walking path through the site's wetlands is a critical part of the pedestrian network in the northwest area of the Township. To make the path fully accessible to all users, both the parking lot and the path will now be paved (or a boardwalk, for approximately 100-feet of the trailway) and the path will be 8-feet in width. An ADA-accessible parking space has also been added to the parking lot. Three spurs to scenic areas of the Johnson Drain, and community signage for the parking lot and path, will also be provided.

#### **EMERGENCY ACCESS & VULNERABILITY TO HAZARDS**

All sites and buildings shall be designed to allow convenient and direct emergency access, and the emergency response needs of the proposed use(s) shall not exceed the Township's emergency response capabilities.

Findings: This item is subject to approval by the Township Fire Chief and Township Engineer.



#### LANDSCAPING, SCREENING & BUFFERING

Proposed landscaping, screening and buffer areas shall be appropriate and of such size, location, height and quantity to ensure that the proposed development will not be objectionable to nearby development or properties by reason of noise, fumes, flash of lights from automobiles or other lighting, interference with an adequate supply of light and air, an increase in the danger of fire, or other public safety hazard. Screening shall be provided in a manner that adequately buffers adjacent land uses and screens off-street parking, mechanical appurtenances, loading and unloading areas and storage areas from adjacent residential areas and public rights-of-way.

**Findings:** As a condition of the PUD Option, additional landscaping, beyond what is required by Ordinance must be provided. Specific recommendations are listed below:

#### **Detention Basin Landscaping**

The selected permanent plants for the emergent wetland seed mix and the stormwater seed mix are all native species appropriate for the soil type of the selected environments (respectively). However, the "temporary cover" includes Annual Rye, which is a European-originating short grass. We recommend that the temporary cover mix be modified to substitute Canada Wild Rye (native) for the Annual Rye. Further, we recommend that a small amount of white clover be included in the temporary mix; as a legume, clovers help restore soil health through carbon fixation and prepare sites for successful native plantings in the future. However, clover should not be the dominant seed if included in the mix, due to its short roots – a strong grass would still be needed for soil stabilization.

A minimum 25-foot buffer has been provided around both detention ponds.

#### Right-of-Way Landscaping

The right-of-way landscaping is absent along the gravel access drive. Given that people will be walking adjacent to this right-of-way as they use the multi-use path, shade trees should be provided at regular intervals.

No trees are proposed along the length of Ridge Road. <u>Deciduous trees should be provided at regular intervals along the lawn extension fronting Ridge Road (with the understanding that Wayne County's review may affect tree placement and number)</u>. Under conventional zoning, trees must be planted along the entire length of the site frontage, in an amount equal to a minimum of one street tree per 40-feet of site frontage, as measured at the street setback line.

#### Parking Lot Landscaping

The overflow parking area does not include any landscaped islands, trees, swales, or curbing on the east and west sides. These features should be included given that this is a permanent parking lot. The northern edge of the parking area is appropriate to leave un-curbed, given that future lot expansion may warrant connecting this edge to future parking (if constructed due to increased visitor demand).

The horse trailer parking area should include curbing along the entirety of the eastern edge to prevent contaminated sheet runoff from entering the wetland area. Even more preferable would be the establishment of a swale (or intermittent swales, separated by curb) along the western edge, which would capture runoff from the trailer area and infiltrate it before reaching the wetland.

Additional infiltration opportunities should be explored for the general parking areas – curb cuts leading into strategically placed sales along the parking lot perimeters swales could help further infiltrate stormwater. Although this would not eliminate the need for the detention basin, it would help improve overall water quality by limiting the distance rainwater travels across the land's surface (during which time it collects particles and pollutants). Further,



the USGS Soil Survey indicates the site is predominately loamy soil, which typically has good or very good drainage. More engineering study would be required to determine where swales or other interventions would be feasible, and we highly encourage that this be examined.

The dimensions of the parking lot islands are missing and must be included. This is necessary to determine the number of trees that should be provided per island – under conventional zoning, a minimum of one deciduous shade tree shall be provided for each 80 square feet of planting area within the island.

#### **General Landscaping**

The landscape plan includes numerous occurrences of Ulmus Frontier (Frontier Elm), which is somewhat disease resistant compared to American Elm. <u>However</u>, it would be more desirable to use an alternative deciduous tree, preferably "Valley Forge" (the most disease resistant hybrid species) if the applicant wishes to remain in the Elm tree family.

The landscape plan includes the European Hornbeam, which would be more desirable if substituted with the American Hornbeam, which includes more vibrant fall colors and is a native species.

The proposed Rain Garden plantings are all native species of acceptable size and quantity.

There is a distinct lack of shrubs and ornamental plantings throughout the site interior – at present, the only landscaping is deciduous trees scattered throughout open lawn. The lawn areas surrounding the parking lot, roadways, and front entrance should be enhanced with flowering shrubs, grasses, and other ornamentals. In particular, a mix of perennials, annuals, and evergreen should be provided to ensure that landscaping is present year-round. Further, species should be drought-resistant in the non-irrigated lawn areas.

The plant materials are all uniform calipers – the Township typically requires a mix of tree heights and sizes to establish visual interest throughout a site.

The landscape plan indicates that all lawn areas shall have 3" of topsoil – a minimum of 4" is the standard for all other sites in the Township and is required.

There are two large lawn areas to the south of the racetrack that are not visible to the public – these areas should be plated with a drought-resistant native groundcover mix, rather than lawn, to ensure they are resilient and low-maintenance, but still accessible by emergency crews.

The grass species for the sod lawn and seed lawn, respectively, must be provided.

#### **BUILDING DESIGN & ARCHITECTURE**

Building design and architecture shall relate to and be harmonious with the surrounding neighborhood in terms of texture, scale, mass, proportion, materials, and color.

**Findings:** The proposed racing building and grandstand is designed using smooth-finish metal panels, brick, and split-face block. The proposed barn and maintenance building are designed using vertical ribbed metal siding and split-face block. The Applicant proposes a modernist architectural design for the racing building and a traditional design for the barn and maintenance building. As a PUD, the proposed building elevations, especially for the main grandstand facility, are underwhelming and do not represent the rendering illustrated in the PUD Option narrative provided by the Applicant. It is recommended that the Planning Commission provide direction on the building elevations and that revised plans are submitted for review to the Township.



We understand that the Applicant is finalizing colored building renders for the Commission's review and will provide them at the meeting on May 3, 2023.

Both the barn and maintenance building are single-story structures and no greater than 25-feet in height, which is shorter in height than a typical industrial building. The main grandstand building is proposed at 45-feet in height, which is similar to other industrial buildings and does not exceed the maximum allowable height of the PUD Option (9-stories).

Additionally, all proposed signs must comply with the requirements of Article 25: Sign Regulations.

#### **EXTERIOR LIGHTING**

All exterior lighting fixtures shall be designed, arranged, and shielded to minimize glare and light pollution, prevent night blindness, and vision impairments, and maximize security.

**Findings**: After relaying concerns that the initial lighting plan featured light poles that were too tall and bright, the Township received a revised lighting plan on Friday, April 28, 2023; due to the timing, review comments are not ready and will be provided by the May 3, 2023, meeting.

#### **PUD CONTRACT**

A PUD Contract is required, which complies with the requirements of section 23.8.

**Findings:** First, the draft PUD Contract must be found acceptable by the Township Attorney, it is our understanding that modifications will be required.

Second, from a planning perspective, there are concerns over the commitment proposed in the PUD Contract. This specifically includes the environmental provisions. During the PUD Option process, the Applicant proposed the following sustainability features, to be designed and located during the site development phase of the project (should the PUD Option be approved at that time). This included:

- Solar panel arrays
- Geothermal heating
- Light reduction measures

The proposed PUD Contract states the "Owner will endeavor to include carbon neutral energy solutions, passive design techniques and other energy efficiency constructions strategies in the design of the Entertainment Facility". The investigation of the feasibility of these amenities must be conducted prior to final approval of the Development Plan, as they were proposed to be a benefit for the granting of the PUD Option itself.

Additionally, as part of the PUD Option, one condition of approval was that the PUD Contract would define the maximum allowable decibel levels, which have not been addressed. It is recognized that the project will generate noise on sporting event days and likely generate odor on live-racing days.

#### **ADDITIONAL COMMENTS**

The following elements were discussed during the PUD Option and must be addressed prior to finalizing the Development Plan and PUD Contract. This includes:



#### **Waste Management Plan**

The proposed PUD Contract states that "All horse manure generated during a racing day event will be collected and stored in approved containers within 24 hours after each event. The Owner will ensure that no manure or other waste is stored in a manner which is likely to result in the contamination of ground water. The containers in which manure and other waste is stored will be emptied on a weekly basis." However, the site's proximity to open surface waters warrants additional attention to waste, and fallbacks should be provided the event owners fail to collect the waste. A waste management plan should be drafted and submitted to Wayne County for review and approval. This plan should follow the best practices outlined by the National Thoroughbred Racing Association's 2021 guidelines for biosecurity, although it need not meet the requirements to be accredited by the NRTA Safety and Integrity Alliance.

#### Safety

There are several outstanding safety questions, these include:

- 1. Will there be periodic training for employees that interact with the horses, to ensure the animals are safe in the conduct of their regular duties? How regular will training be, if provided?
- 2. Do you have a safety committee of employees, stewards, horse racers, jockeys, etc.? If so, who composes the committee and how often do they meet?
- 3. Will any flammable solvents for stable cleaning be stored on site? How are these secured? Is there an outdoor smoking area for stable staff to prevent the possibility of fires beginning in the stables?

#### **Specialty Traffic**

Given the unique purpose of the site as a regional tourist destination, additional considerations should be made for specialty traffic. The PUD Contract (and/or the site plan) should specify plans to accommodate the following types of traffic:

- 1. Ride hailing pick-up and drop-off.
- 2. Bus and oversize vehicle parking.
- 3. Shuttle service from off-site (if the applicant plans to provide such a service).

#### **Evacuation Plan**

The proposed PUD Contract state that: "An emergency evacuation plan will be developed in accordance with the requirements of the Plymouth Township Fire Department. Traffic management in an emergency situation will be in accordance with the Access Plan shown on the General Development Plan [site plan]." However, evacuation plans should not be based solely on the requirements of the Plymouth Township Fire Department. A proper evacuation plan should incorporate the best practices set forth by the US Dept. or Homeland Security, which has specific guidelines for stadium evacuations. We recommend that language to this effect be incorporated in the PUD contract and that a specific time frame be established for the delivery of the complete evacuation plan (e.g., within 6 months of signing, before the Certificate of Occupancy, etc.).

#### Other

The proposed walking path is asphalt and maintenance standards should be included in the PUD Contract, given that asphalt has a life expectancy of asphalt is greatly affected by routine maintenance. Low-cost repairs add additional years of life to the pavement for a far lower annual cost than waiting for that segment to require reconstruction, and as such, maximize the volume of preventative maintenance performed each year while slowly 'chipping away' at high-cost rebuilds.



## Recommendation

Based on the information submitted and the number of outstanding items in the Development Plan, PUD Contract (including outstanding items from the Township Engineer, Attorney, and Fire Department), it is recommended that the Planning Commission provide direction to the applicant on May 3, 2023, and table any further action until a revised plan set and PUD Contract is provided to the Township.

Please do not hesitate to contact us with any questions, thank you.

Respectfully submitted,

**McKENNA** 

Laura E. Haw, AICP, NCI Senior Principal Planner Nani Wolf, AlCP, CAPS Associate Planner

CC: Township Clerk: Jerry Vorva, 9955 N. Haggerty Rd, Plymouth, MI 48170 (jvorva@plymouthtwp.org)

#### Engineering & Surveying Excellence since 1954

April 20, 2023

The Planning Commission Plymouth Charter Township 9955 North Haggerty Road Plymouth, Michigan 48170

Re: Northville Downs – Site Plan Review

Application No. 2478-0423 SDA Review No. PL23-104

#### Dear Planning Commission:

We have received the site plan submittal for the above referenced project prepared by PEA Group dated March 31, 2023 and were received by our office on March 31, 2023. The plans were reviewed in accordance with Plymouth Township Engineering Standards and the following comments are our observations.

#### A. General

The site is located on the southwest corner of 5 Mile Road and Ridge Road. The site is 125.16 acres total. The site is currently occupied by an existing 60' wide private road, Techne Drive, and the remaining of the site is vacant. The proposed project includes the removal of a part of the private road and construction of a racing building, maintenance building, barn, and half mile harness racing track with parking areas and horse trailer spaces along with drives connecting the site.

The proposed parcel legal description is within Parcel, Tax ID. 78-01-99-0001-704. This parcel was split/combined on 01/22/2021. A lot split for the existing Ridge 5 Corporate Park Condominium will be required prior to final site plan approval.

- 1. Revise the plans to indicate and label the existing gravel maintenance access drive on the northwest corner of the site.
- 2. The existing site is located within floodplain and wetlands areas. The current plans indicate that the wetland areas will be impacted and disturbed. EGLE Permits will be required for any proposed work within these areas.
- 3. No landscaping will be permitted within the watermain easement or sanitary sewer easement and will be separated from any proposed storm sewer by a minimum of 5-feet.
- 4. There are some regional utilities plan that will impact this development including water tower and water main. Coordination with Township and our office (SDA) will be required.
- 5. Provide a traffic impact assessment with historical vehicle data, during AM and PM peak hours and special events to determine the impact traffic to the corridor.
- 6. The revised layout of two fire access roads shall be reviewed and approved by the Plymouth Fire Marshall.

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

#### Engineering & Surveying Excellence since 1954

 Provide cost estimate with unit cost for construction of all the underground utilities and paving and grading to be installed with this project. The engineering review and construction inspection fees that we will compute based on the said estimate must be submitted to the Township prior to engineering plan review and approval.

#### B. Water Main

The plans show an existing 12" diameter water main located on the south side along Techne Drive that loop around the existing wetland to the south and connects to the existing water main along Ridge Road in two locations. The existing water main is captured within a 12-foot wide easement. The proposed watermain connects to existing 12" watermain at two locations by the proposed racetrack, and loops around the proposed racing building and it is captured within a proposed 12-foot-wide easement.

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

- 1. Revise the plans to show the existing 12-foot wide water main easement and vacate the existing easement where the water main is being removed.
- 2. All proposed water main shall provide at least 20 feet clearance from centerline of watermain to outside edge of any building structure including the racing building. Engineering drawings shall reflect this change.
- 3. An EGLE permit for construction will be required for the proposed public watermain.

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

- 1. All watermain shall have six (6) feet of cover from finished grade.
- 2. The Plymouth Fire Marshall shall review and approve the hydrant coverage for the site.
- 3. At engineering stage, coordination will be needed for the location of the proposed gate valve and well which is currently shown inside the racing track surface.

#### C. Sanitary Sewer

The plans show an existing 8" sanitary sewer located along the north side of Techne Drive and drains into a private pump station located approximately 500 feet west of the Ridge Road Right-of-Way and along the northern right-of-way of Techne Drive. There are existing 12-foot wide, and 22-foot wide private and a 20-foot wide public sanitary easements. There are two proposed leads connecting to the existing 8" sanitary sewer serving the proposed barn and racing building.

Based on this sanitary sewer layout, we have the following site review comment:

1. Revise the plans to show the existing sanitary sewer easements.

#### D. Storm Drainage/Grading

Storm water runoff is to be captured via catch basins along the proposed parking areas and Techne Drive and drain to the existing detention facility on the north side of the site with outlet to the Johnson Drain. Records and storm water management calculations provided indicate that the proposed site is accounted for in the Ridge Road Industrial Park detention basin calculations.

Based on this storm drainage and grading layout, we have the following site review comments:

- 1. Offsite surface runoff shall not be trapped along the development perimeter. If the existing runoff from adjacent properties pass onto the proposed site, the proposed storm sewer system must be sized to accommodate.
- 2. On-site drainage must be captured within the proposed development via the storm sewer network and will not be allowed to drain to adjacent properties.
- 3. Indicate how the stormwater run-off from proposed barn, paddock, racing track and any horse areas will be treated for storm water quality, including the interior and exterior perimeter of the racetrack.
- 4. Confirm that Wayne County Department of Public Services will not require additional detention capacity and stormwater pre-treatment on site.
- 5. All storm water design calculations are to follow Plymouth Township and Wayne County Department of Public Services standards and details.

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

1. Slope grades are to be provided on the grading plan.

#### E. Paving

The site is accessed by two driveways off Ridge Road, an existing 60' wide private road, Techne Drive, and a proposed commercial drive. The proposed plans include a racing building, maintenance building, barn, and half mile harness racing track, 251 parking areas, 197 overflow parking spaces, 15 employee parking spaces and 44 horse trailer spaces along with drives connecting the site. Sidewalk is proposed along the frontage of the site on the west side of Ridge Road and a proposed 8' paved bike path is proposed around the site with a wooden boardwalk overseeing the drain from the existing gravel maintenance access road and looping around the site to the proposed paved parking area.

Based on this proposed work, we have the following site review comments:

- 1. Identify on plans the type of existing pavement and curb.
- 2. Sheet C4.4: Consideration shall be provided along the proposed asphalt bike path near the steep proposed slopes along the wetland.

#### **Permits Required**

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

Plymouth Township:

1. All necessary easements including water main, and any vacated easements. Easements must be on Plymouth Township Standard Easement document and include a sketch. A current title policy for ownership verification shall be provided with all executed easement submittals.



- 2. Storm Water Agreement (for the stormwater system improvement on the site).
- 3. Maintenance bond and insurance for the water main to be dedicated to the township.

#### Wayne County:

- 1. Copy of Wayne County Department of Public Services approval and permit.
- 2. Copy of Soil Erosion and Sedimentation permit from Wayne County Department of Public Services, Land Resource Management Division.
- 3. Wayne County Permit for any work within the Ridge Road ROW, if applicable.

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

- 1. NPDES Notice of Coverage Documentation.
- 2. EGLE Permit for all water main installation.
- 3. EGLE Permit for any proposed work in 100-year flood plain, if applicable.
- 4. EGLE Permit for Inland Lakes and Streams, if applicable.
- 5. A Letter of Map Revision must be requested through Federal Emergency Management Agency (FEMA) for the Flood Insurance Rate Map (FIRM) where portions of 100-year floodplain limit is proposed to be relocated, if applicable.
- 6. EGLE Permit for all proposed work within the state-regulated wetlands.

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

#### **RECOMMENDATION**

We recommend approval of the Tentative and Final Site Plan, conditional upon all of the above comments being addressed to the satisfaction of the Planning Commission. Final engineering approval is not recommended at this time due to the number and nature of the comments.

The comments are not to be constructed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Plymouth Township Engineering Design Standards and 2021 Plymouth Township Standard Details. Sanitary sewer and water benefit fees may be applicable for this project.

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

Sincerely,

#### Engineering & Surveying Excellence since 1954

**SPALDING DEDECKER** 

Adam Chludzinski Project Engineer Luisa Amici

Municipal Engineer

Lusa Ameri

cc: Patrick Fellrath, Director of Public Utilities, Charter Township of Plymouth (via Email)

Carol Martin, Office Manager, Charter Township of Plymouth (via Email)



#### PLYMOUTH TOWNSHIP FIRE DEPARTMENT

9955 N. Haggerty Rd Plymouth, Michigan 48170-4673

(734) 354-3219 Fax: (734) 354-9672 Emergency - Dial 911

Occupant Name:

Vacant

Inspection Date: InspectionType: 4/26/2023

Address:

49500 S.W Five Mile -Ridge rd. Site Plan/Plan Review

Suite:

Inspected By:

Jeff Randall jrandall@plymouthtwp.org

Occ. Sq. Ft.: Contacts: 0 -NoneLockbox Location:

Insp. Result	Location	Code Set	Code
N/A	Floor 1	IFC 2012 Section 501 General	501.3 - Construction documents.
Fail	Floor 1	IFC 2012 Section 503 Fire Apparatus Access Roads	503.1 - Fire Access Roads
	Inspector Comments: Secondary Fire Access Road will require ELECTRIC Knoxbox assessause of the racetrack as a second access will require higher standards on gates. Racetrack must handle 75,000 pounds of weight.		
N/A	Floor 1	IFC 2012 Section 503 Fire Apparatus Access Roads	503.1.1 - Buildings and facilities.

We thank you for providing us the time to inspect your business. We anticipate your cooperation in correcting the Fire Code hazards and violations cited.

## Fire Department inspectors will return on or shortly after 5/9/2023 to ensure compliance.

Please note that a court appearance ticket may be issued for non-compliance. If you are the tenant and some of the violations listed above are the responsibilities of the owner, it is your responsibility to contact them for the code corrections.

#### ALL PLAN DEFICIENCIES MUST BE CORRECTED BEFORE PLANS ARE APPROVED.

of Ronald

To schedule additional plan reviews, please call Inspector Jeff Randall at 734-354-3219. Approval of plans does not remove the contractor or other responsible party from responsibility for adhering to all applicable codes and ordinances.

Inspector:

Jeff Randall

# NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP

49500 THROUGH 49900 TECHNE DRIVE PLYMOUTH TOWNSHIP, WAYNE COUNTY, MICHIGAN

## PERMIT / APPROVAL SUMMARY DATE SUBMITTED DATE APPROVED WAYNE COUNTY SESC PERMIT WAYNE COUNTY ENGINEERING EGLE WATER MAIN PERMIT EGLE WETLANDS PERMIT

#### WAYNE COUNTY D.P.S. GENERAL NOTES:

- AREAS PRIOR TO START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES
- ANY PROPOSED UTILITY PERMITTED TO CROSS UNDER THE ROAD OR DRAIN MUST BE PLACED A MINIMUM OF 7 FEET BELOW THE LOWEST POINT OF THE ROAD. OR 6 FEET BELOW THE DRAIN BOTTOM. OVERHEAD WIRES/CABLES MUST BE INSTALLED 18 FEET MINIMUM ABOVE THE ROAD CENTERLINE. TO RELOCATE ANY UTILITY WITHIN THE ROAD R.O.W., THE CONTRACTOR SHALL COORDINATE THE RELOCATION WITH THE UTILITY COMPANY AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER
- ALL SURVEY MONUMENTS/CORNERS AND BENCH MARKS LOCATED WITHIN THE CONSTRUCTION AREA MUST BE PRESERVED IN ACCORDANCE WITH PUBLIC ACT 74 AS AMENDED (INCLUDING ACT 34, P.A. 2000) AND AS PER WAYNE COUNTY PERMIT RULE 1.5. THE PERMIT HOLDER AND CONTRACTOR SHALL COORDINATE THE WORK WITH A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF MICHIGAN DURING CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF WITNESSING, PRESERVING OR REPLACING
- EXPOSURE OF ANY UTILITIES UNDER THE PAVEMENT WILL NOT BE PERMITTED UNLESS APPROVED BY THE WAYNE COUNTY ENGINEER. PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PERFORMED PER APPLICABLE WAYNE COUNTY STANDARD DETAILS AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY AND DRAIN EASEMENT WITH 3" OF TOPSOIL, THM SEED MIX AND MULCH. SLOPES STEEPER THAN 1 ON 3 SHALL BE RESTORED BY PLACING SOD ON 2" OF TOPSOIL.
- ALL BACKFILLS UNDER OR WITHIN 3 FEET OF THE PROPOSED OR EXISTING PAVEMENT, CURB OR SIDEWALK SHALL CONFORM TO THE WAYNE COUNTY TRENCH 'B' BACKFILL REQUIREMENTS. TRENCH 'A' BACKFILL MAY BE USED WITHIN THE ROAD R.O.W. AREAS UNDER CONDITIONS OTHER THAN THOSE SPECIFIED FOR TRENCH 'B'.
- CONTRACTOR IS RESPONSIBLE FOR RESTORING OR REPLACING ALL DISTURBED LANDSCAPED AREAS, SPRINKLER SYSTEMS, FENCES, SIGNS, MAIL BOXES, ETC. WITHIN THE WAYNE COUNTY ROAD R.O.W. AND/OR AS DIRECTED BY THE COUNTY ENGINEER.
- 10. CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. OTHERWISE, DETOURING TRAFFIC MUST BE PER APPROVED PLANS. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE M.U.T.C.D.
- MAINTAIN A SAFE AND ADEQUATE TRAVEL ROUTE FOR PEDESTRIANS AT ALL TIMES THROUGHOUT THE PROJECT DURATION.
- 12. TUNNELING, BORING AND JACKING OPERATIONS SHALL BE IN ACCORDANCE WITH THE WAYNE COUNTY SPECIFICATIONS AND DETAILS. BORE PITS SHALL BE PLACED AT MINIMUM 10 FEET FROM THE BACK OF CURB OR EDGE OF PAVEMENT.
- 13. REMOVE ALL ABANDONED CONDUITS FROM THE COUNTY ROAD R.O.W. OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- 14. CONTRACTOR SHALL PROVIDE COLD WEATHER PROTECTION FOR ALL PROPOSED CONCRETE WORK (PAVEMENTS, SIDEWALKS, DRIVE APPROACHES, ETC.) AS DIRECTED BY
- 15. OVERNIGHT VEHICLE PARKING AND STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENT ARE NOT PERMITTED WITHIN THE WAYNE COUNTY ROADS R.O.W.
- 16. CONTRACTOR SHOULD OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DPS-ESG. CONTACT THE WAYNE COUNTY SOIL EROSION
- 17. CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY TRAFFIC SIGNAL SHOP AT (734) 955-2154 AT LEAST 3 DAYS PRIOR TO START OF WORK AT/NEAR ANY SIGNALIZED
- 18. CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO THE START OF CONSTRUCTION. CONTACT THE PERMIT OFFICE AT (734) 595-6504 EXT. 2009

## **DESIGN TEAM**

# OWNER

NORTHVILLE DOWNS 301 S. CENTER STREET NORTHVILLE, MI 48167 CONTACT: JOHN CARLO PHONE: 513.520.8636 EMAIL: MOUSETRAP1@YAHOO.COM **DEVELOPER** 

MILITELLO PROPERTY GROUP 268 MAIN STREET, SUITE 301 BUFFALO, NY 14202 CONTACT: WILLIAM D. HIBBARD, PE, MBA ASSOICATE BROKER PRINCIPAL 716.856.2872 (MAIN)

716-316-6094 (CELL) EMAIL: BILL@MILITELLO.COM

## ARCHITECT

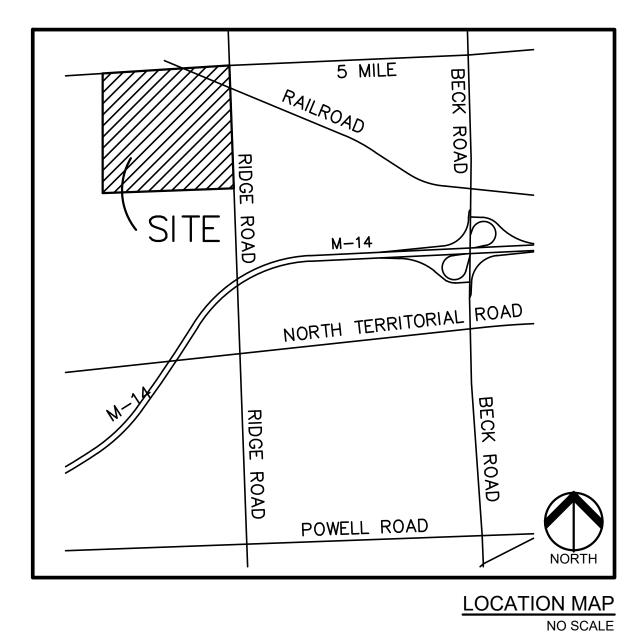
G.A.V. ASSOCIATES, INC. 24001 ORCHARD LAKE ROAD, SUITE 180A FARMINGTON, MI 48336 CONTACT: AL VALENTINE PHONE: 248.985.9101 (MAIN) 248.752.1247 (CELL) EMAIL: AL@GAVASSOCIATES.COM

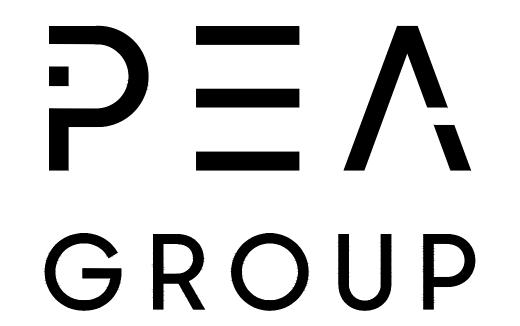
**CIVIL ENGINEER** 

PEA GROUP 58105 VAN DYKE RD. WASHINGTON TWP., MI 48094 CONTACT: BECKY KLEIN, PE, LEED AP BD+C PHONE: 844.813.2949 EMAIL: BKLEIN@PEAGROUP.COM

## LANDSCAPE ARCHITECT

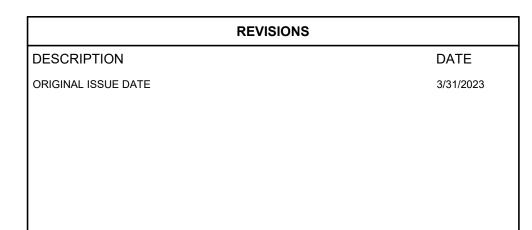
PEA GROUP 7927 NEMCO WAY, STE. 115 BRIGHTON, MI 48116 CONTACT: JANET EVANS, PLA PHONE: 844.813.2949 EMAIL: JEVANS@PEAGROUP.COM





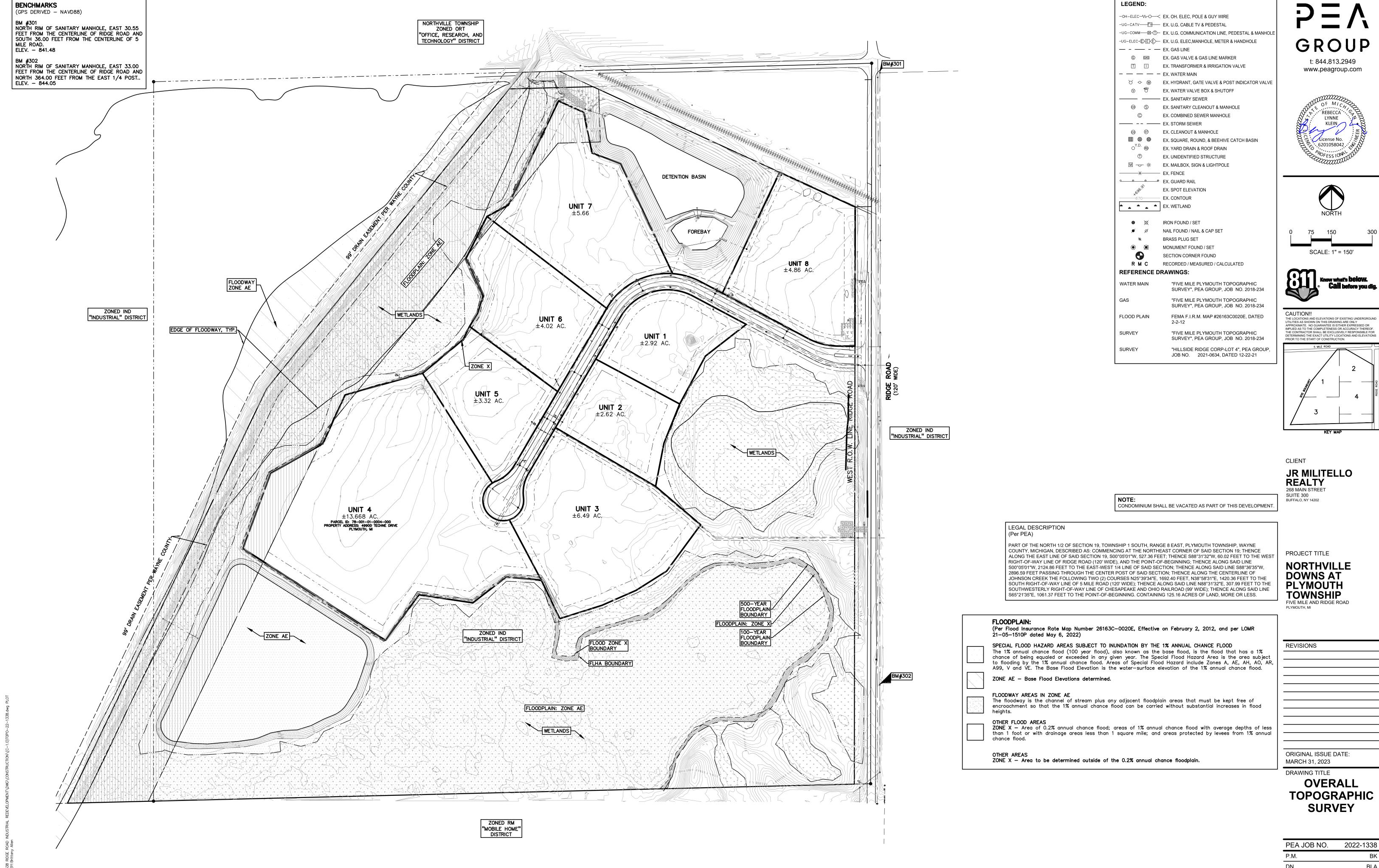
	INDEX OF DRAWINGS
SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-1.0	OVERALL TOPOGRAPHIC SURVEY
C-1.1	TOPOGRAPHIC SURVEY - 1
C-1.2	TOPOGRAPHIC SURVEY - 2
C-1.3	TOPOGRAPHIC SURVEY - 3
C-1.4	TOPOGRAPHIC SURVEY - 4
C-2.1	DEMOLITION PLAN - 1
C-2.2	DEMOLITION PLAN - 2
C-2.3	DEMOLITION PLAN - 3
C-3.0	OVERALL SITE PLAN
C-3.1	DIMENSION AND PAVING PLAN - 1
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C-3.6	STADIUM LIGHTING PLAN
C-3.7	STADIUM LIGHTING CONTROLS
23-10448 V3	PHOTOMETRIC PLAN
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C-4.3	GRADING PLAN - SHEET 3
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C-4.12	GRADING PLAN - SHEET 12
C-5.1	SESC PLAN - SHEET 1
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C-5.5	EROSION CONTROL DETAILS
C-6.0	OVERALL UTILITY PLAN
C-7.0	SANITARY SEWER PLAN
C-8.1	WATER MAIN PLAN AND PROFILE - SHEET 1
C-8.2	WATER MAIN PLAN AND PROFILE - SHEET 2
C-8.3	WATER MAIN PLAN AND PROFILE - SHEET 3
C-8.4	WATER MAIN PLAN AND PROFILE - SHEET 4
C-8.5	WATER MAIN PLAN - SHEET 5

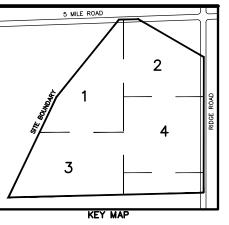
C-9.1	STORM SEWER PLAN - SHEET 1
C-9.2	STORM SEWER PLAN - SHEET 2
C-9.3	STORM SEWER PLAN - SHEET 3
C-9.4	STORM SEWER PROFILES - SHEET 1
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C-10.1	DRAINAGE PLAN
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C-12.1	RIDGE ROAD RIGHT-OF-WAY PLAN - SHEET 1
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A.201	EXTERIOR ELEVATIONS (GAMING/GRANDSTAND BLDG)
A.101S	FLOOR PLAN (HORSE STABLE BLDG)
A.201S	EXTERIOR ELEVATIONS (HORSE STABLE BLDG)
A.101M	FLOOR PLAN (MAINTENANCE BUILDING)
	DI VAAOLITII TOVANICI UD OTANDADD DETAU O
l	PLYMOUTH TOWNSHIP STANDARD DETAILS
W-1	STANDARD WATER MAIN DETAILS
W-2	STANDARD WATER MAIN DETAILS
W-S	STANDARD SANITARY SEWER AND WATER SERVICE DETAILS
S-1	STANDARD SANITARY SEWER DETAILS
S-2	STANDARD SANITARY SEWER DETAILS
GDS	GRADING, DRAINAGE, AND SURFACING STANDARD DETAILS





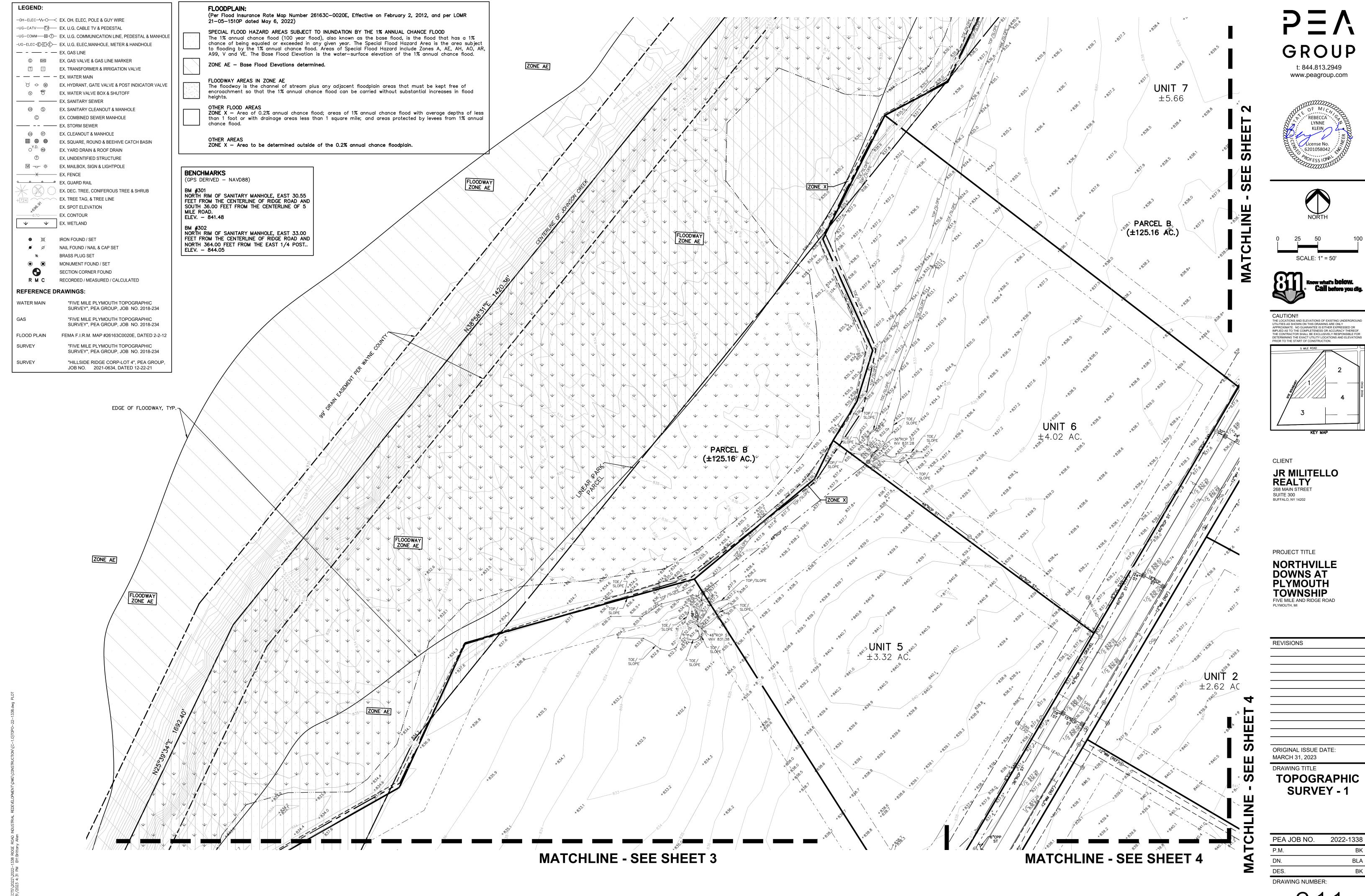
NOT FOR CONSTRUCTION





**TOPOGRAPHIC** 

BLA DES. DRAWING NUMBER:



C-1.1



-OH-ELEC-VV-O- EX. OH. ELEC, POLE & GUY WIRE -UG-CATV-TV-EX. U.G. CABLE TV & PEDESTAL -UG-ELEC-E-EKE- EX. U.G. ELEC,MANHOLE, METER & HANDHOLE — - — - — EX. GAS LINE © GAS EX. GAS VALVE & GAS LINE MARKER - — — — EX. WATER MAIN ♥ ♥ ₩ EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE EX. SANITARY SEWER © EX. COMBINED SEWER MANHOLE —— -- EX. STORM SEWER ⊚ ⑤ EX. CLEANOUT & MANHOLE EX. SQUARE, ROUND & BEEHIVE CATCH BASIN ○<sup>Y.D.</sup> ® EX. YARD DRAIN & ROOF DRAIN ② EX. UNIDENTIFIED STRUCTURE M → ★ EX. MAILBOX, SIGN & LIGHTPOLE X EX. FENCE EX. GUARD RAIL EX. DEC. TREE, CONIFEROUS TREE & SHRUB EX. TREE TAG, & TREE LINE EX. SPOT ELEVATION EX. CONTOUR ↓ ↓ EX. WETLAND ■ IRON FOUND / SET

NAIL FOUND / NAIL & CAP SET BRASS PLUG SET MONUMENT FOUND / SET SECTION CORNER FOUND R M C RECORDED / MEASURED / CALCULATED

**REFERENCE DRAWINGS:** WATER MAIN "FIVE MILE PLYMOUTH TOPOGRAPHIC SURVEY", PEA GROUP, JOB NO. 2018-234 "FIVE MILE PLYMOUTH TOPOGRAPHIC SURVEY", PEA GROUP, JOB NO. 2018-234 FEMA F.I.R.M. MAP #26163C0020E, DATED 2-2-12 FLOOD PLAIN "FIVE MILE PLYMOUTH TOPOGRAPHIC SURVEY", PEA GROUP, JOB NO. 2018-234 "HILLSIDE RIDGE CORP-LOT 4", PEA GROUP, JOB NO. 2021-0634, DATED 12-22-21

GROUP t: 844.813.2949

BENCHMARKS (GPS DERIVED - NAVD88)

BM #301 NORTH RIM OF SANITARY MANHOLE, EAST 30.55 FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5 MILE ROAD. ELEV. — 841.48

BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. — 844.05

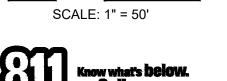
MATCHLINE - SEE SHEET 4



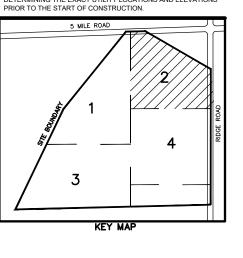
www.peagroup.com







CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROU UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY UTILLITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



# JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

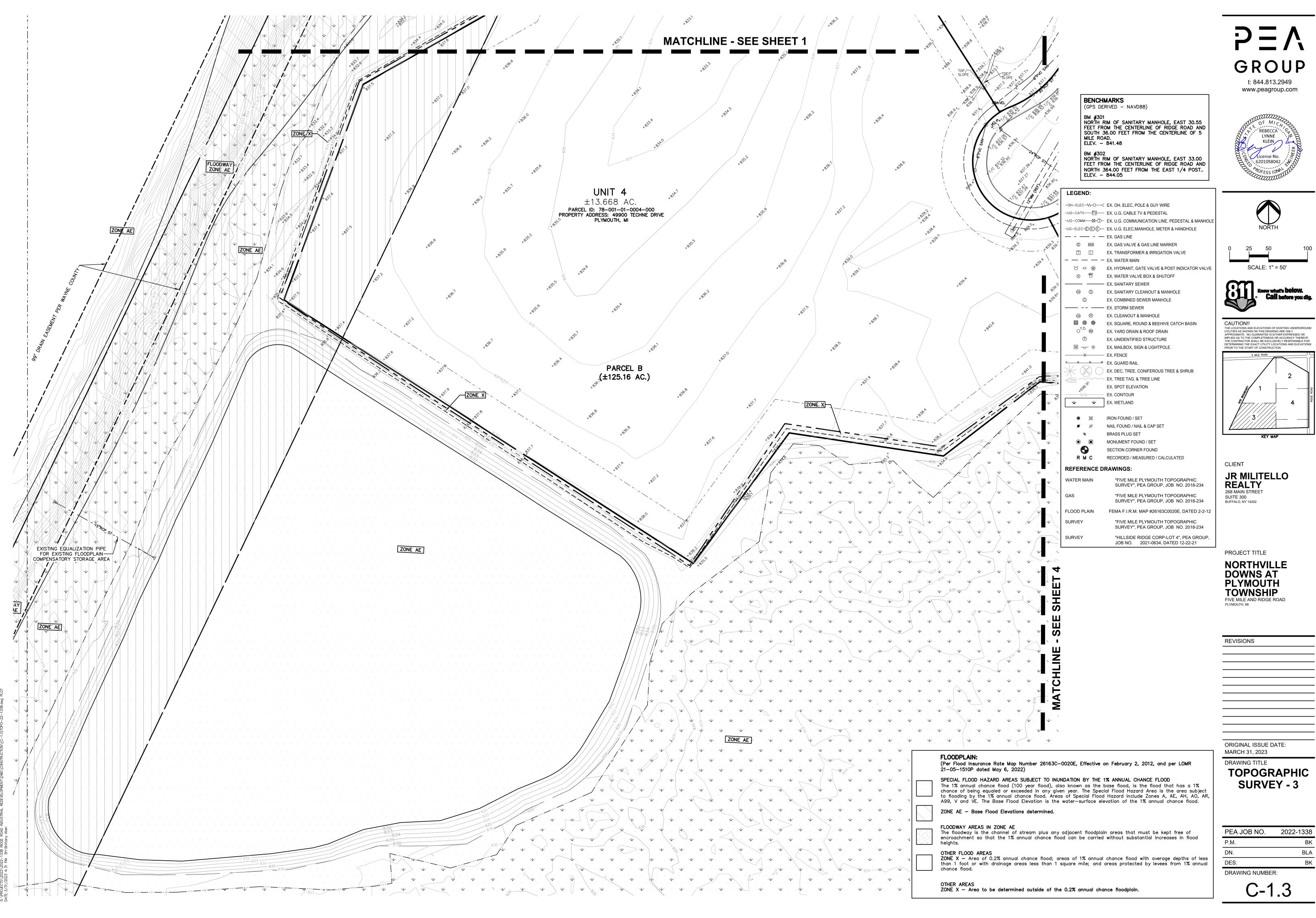
ORIGINAL ISSUE DATE: MARCH 31, 2023

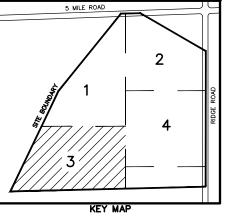
## DRAWING TITLE TOPOGRAPHIC SURVEY - 2

2022-1338
ВК
BLA
ВК

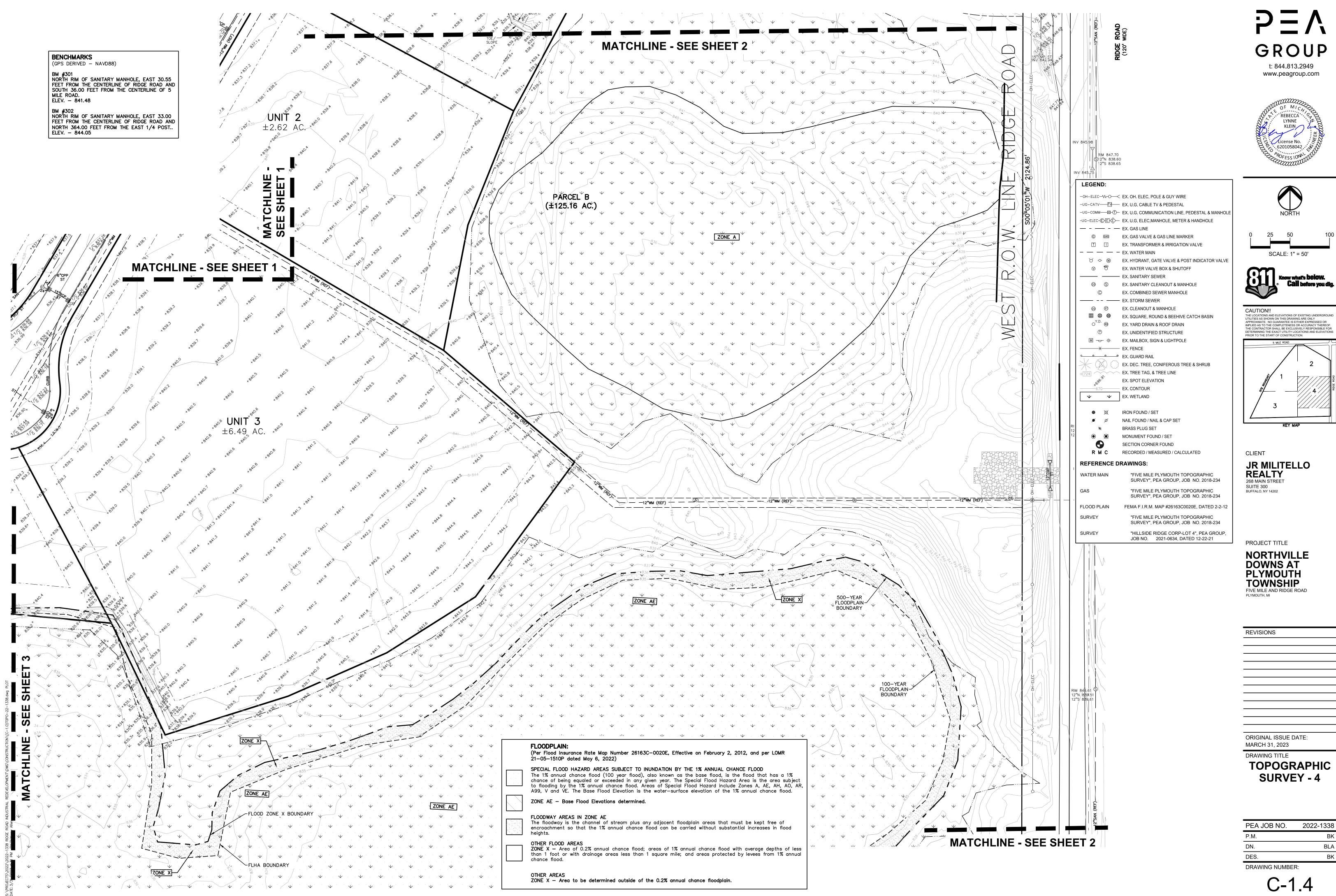
C-1.2

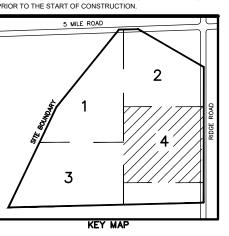
FLOODPLAIN: (Per Flood Insurance Rate Map Number 26163C-0020E, Effective on February 2, 2012, and per LOMR 21-05-1510P dated May 6, 2022)
 SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD  The 1% annual chance flood (100 year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water—surface elevation of the 1% annual chance flood.
ZONE AE — Base Flood Elevations determined.
FLOODWAY AREAS IN ZONE AE The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
OTHER FLOOD AREAS  ZONE X — Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
OTHER AREAS ZONE X — Area to be determined outside of the 0.2% annual chance floodplain.



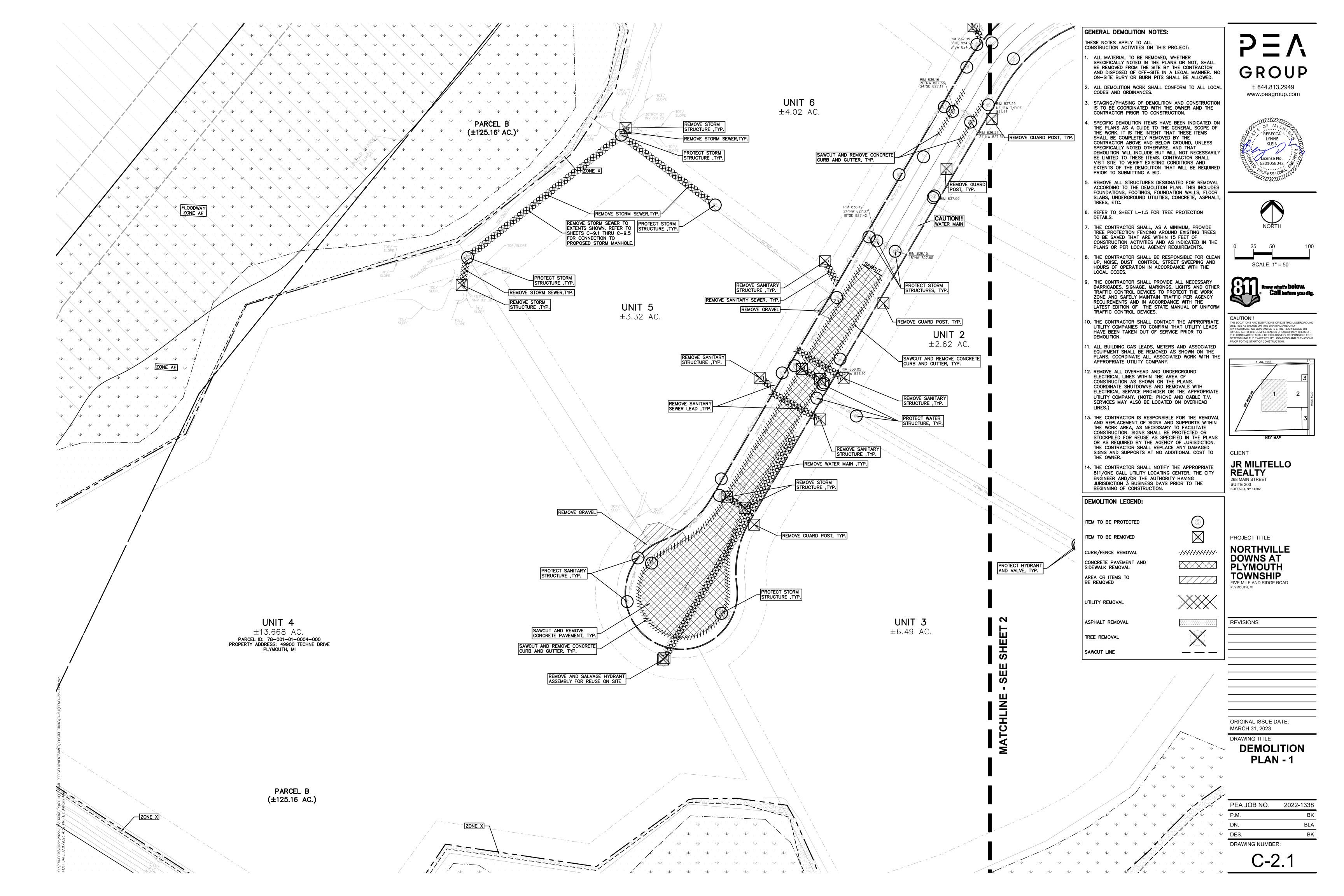


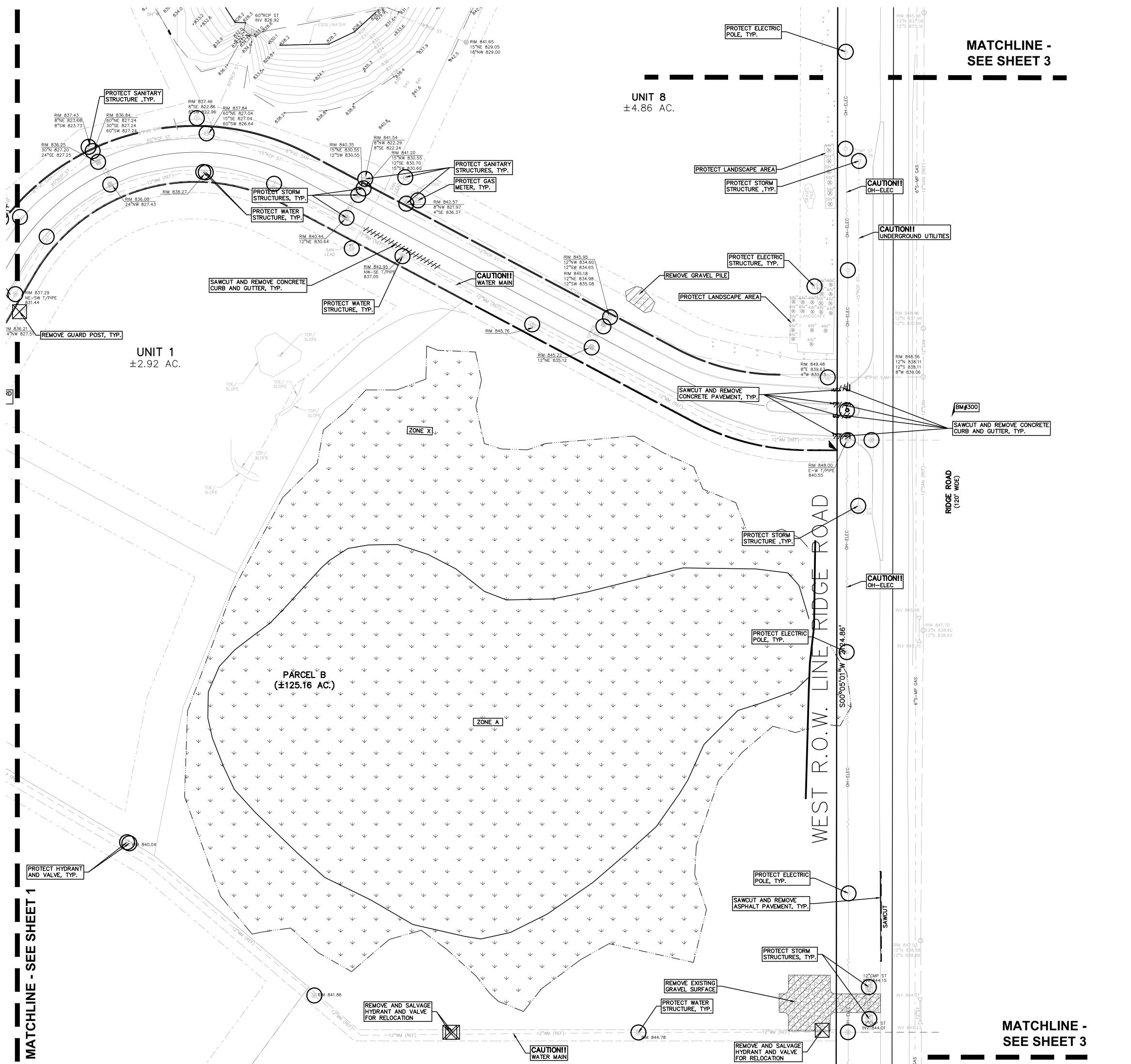
REVISIONS		





PEA JOB NO. 2022-1338 BLA





DEMOLITION LEGEND:

ITEM TO BE PROTECTED

ITEM TO BE REMOVED

SAWCUT LINE

CURB/FENCE REMOVAL

CONCRETE PAVEMENT AND SIDEWALK REMOVAL AREA OR ITEMS TO BE REMOVED

UTILITY REMOVAL

**XXX** ASPHALT REMOVAL TREE REMOVAL

X

·/·/·/·/·/·/·/·/·/·/·

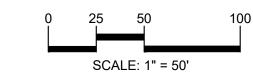
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GROUP t: 844.813.2949

www.peagroup.com

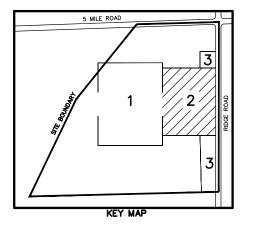








CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



CLIENT JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

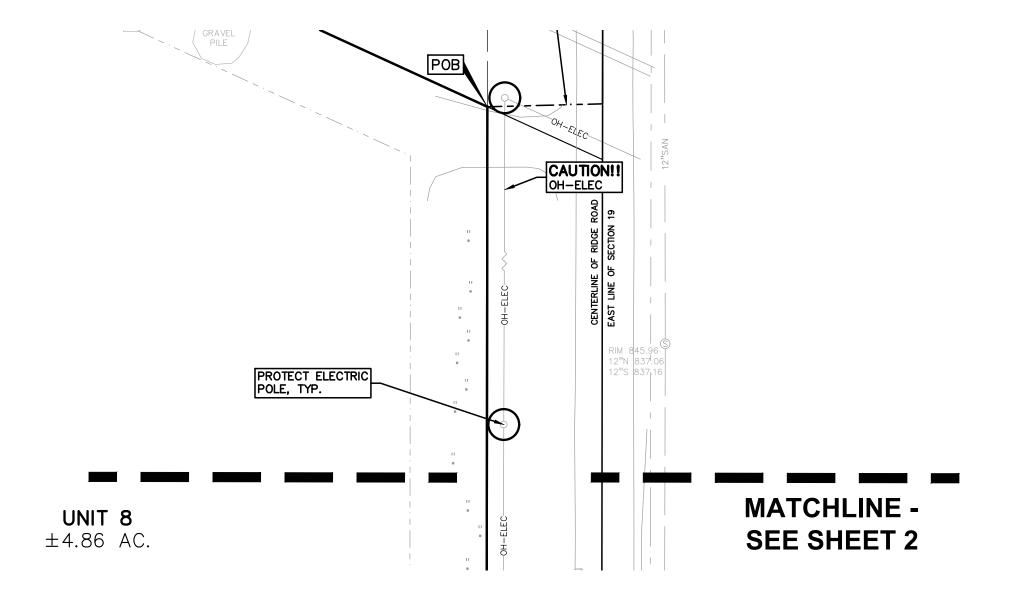
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

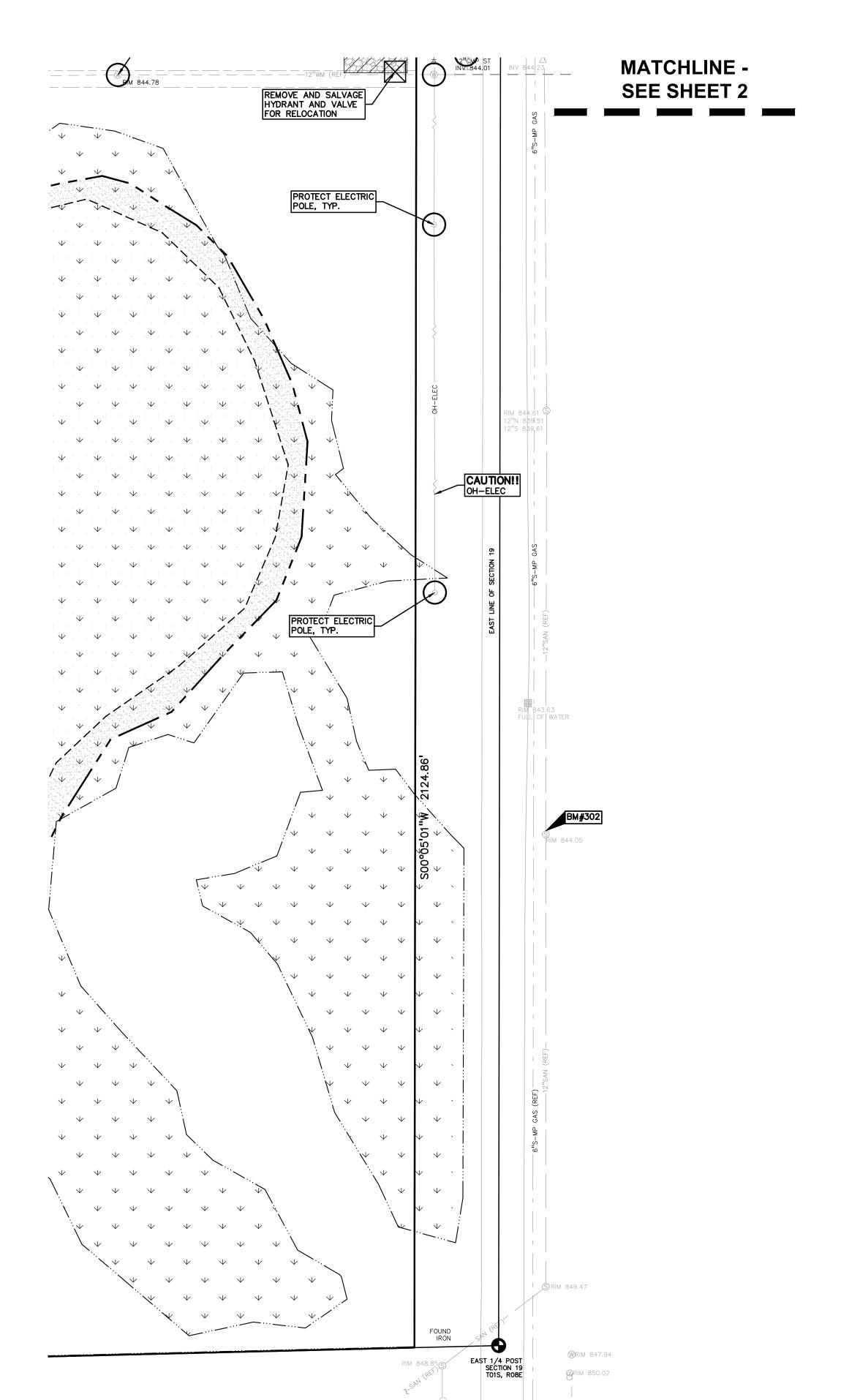
REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

DEMOLITION PLAN - 2

PEA JOB NO. 2022-1338 BLA DRAWING NUMBER:





GENERAL DEMOLITION NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:

- . ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
- ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES.
- 3. STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION.
- E. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
- 5. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, FLOOR SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC.
- 6. REFER TO SHEET L-1.5 FOR TREE PROTECTION DETAILS.
- 7. THE CONTRACTOR SHALL, AS A MINIMUM, PROVIDE TREE PROTECTION FENCING AROUND EXISTING TREES TO BE SAVED THAT ARE WITHIN 15 FEET OF CONSTRUCTION ACTIVITIES AND AS INDICATED IN THE PLANS OR PER LOCAL AGENCY REQUIREMENTS.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 10. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION.
- 11. ALL BUILDING GAS LEADS, METERS AND ASSOCIATED EQUIPMENT SHALL BE REMOVED AS SHOWN ON THE PLANS. COORDINATE ALL ASSOCIATED WORK WITH THE APPROPRIATE UTILITY COMPANY.
- 12. REMOVE ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS. COORDINATE SHUTDOWNS AND REMOVALS WITH ELECTRICAL SERVICE PROVIDER OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE T.V. SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES.)
- 13. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION. SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
- 14. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

DEMOLITION LEGEND:

ITEM TO BE PROTECTED

ITEM TO BE REMOVED

CURB/FENCE REMOVAL

CONCRETE PAVEMENT AND SIDEWALK REMOVAL

AREA OR ITEMS TO BE REMOVED

UTILITY REMOVAL

ASPHALT REMOVAL
TREE REMOVAL

SAWCUT LINE

\_ \_ \_

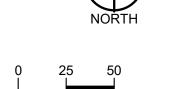
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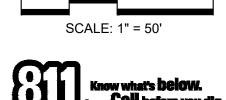
PE/ GROUP t: 844.813.2949

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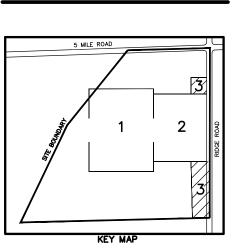






CAUTION!!

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CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOLITH MI

REVISIONS

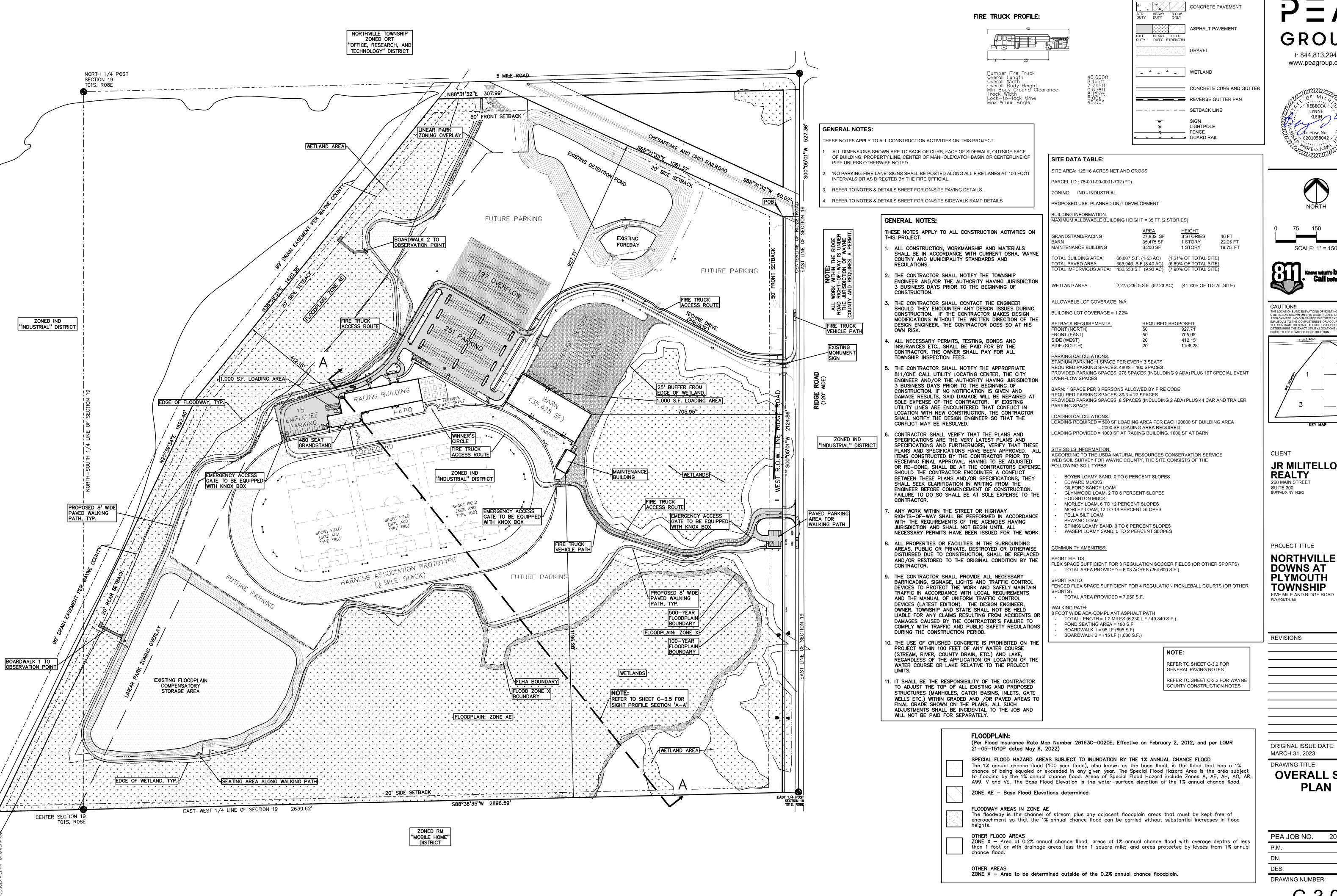
ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE

DEMOLITION PLAN - 3

·	PEA JOB NO.	2022-1338
,	P.M.	ВК
	DN.	BLA
	DES.	ВК
·	DRAWING NUMBER:	

C-2.3



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**LEGEND**:

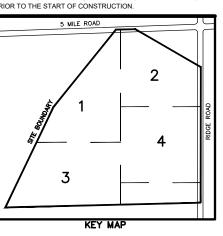




SCALE: 1" = 150'



TILITIES AS SHOWN ON THIS DRAWING ARE ONLY PRIOR TO THE START OF CONSTRUCTION.



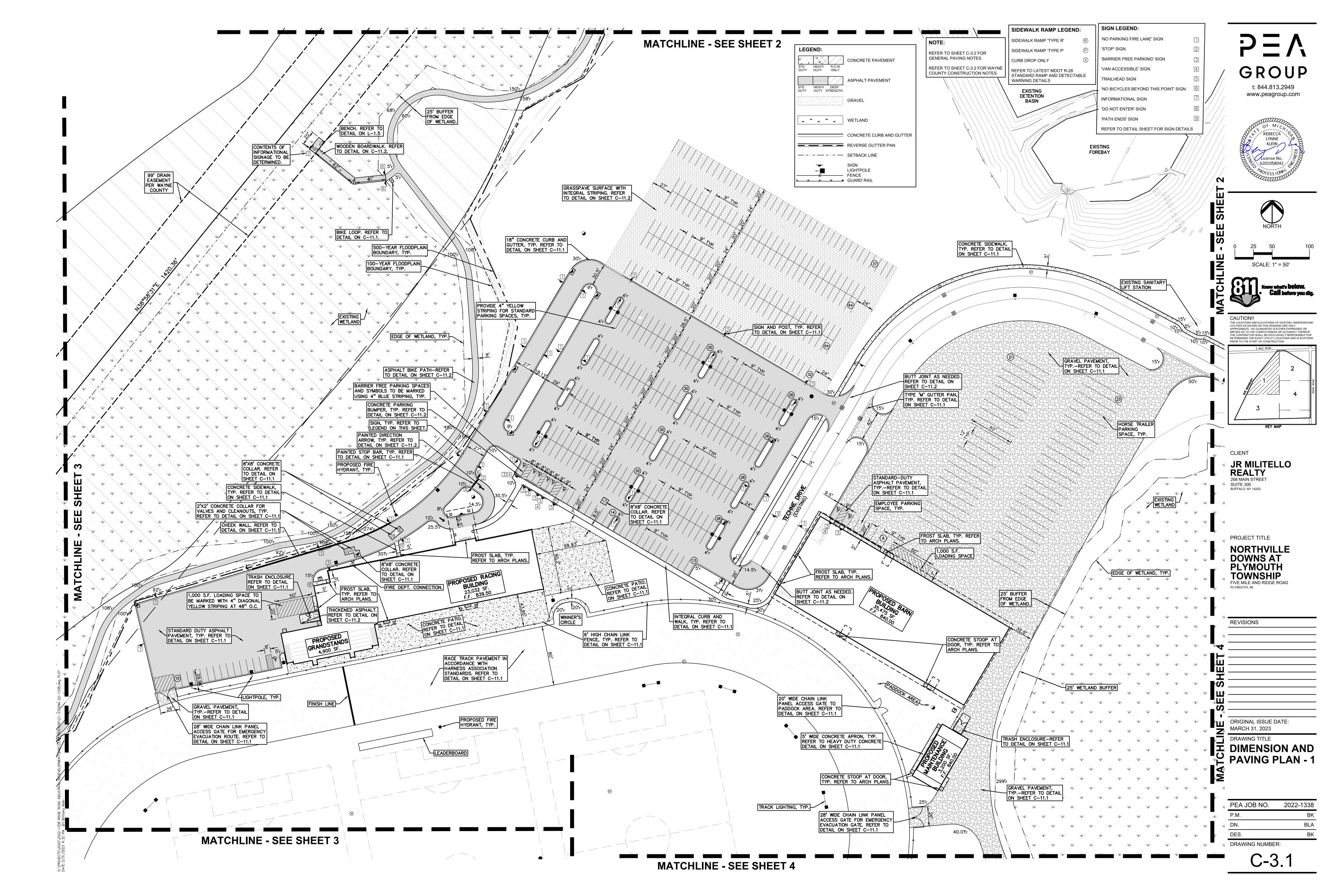
JR MILITELLO

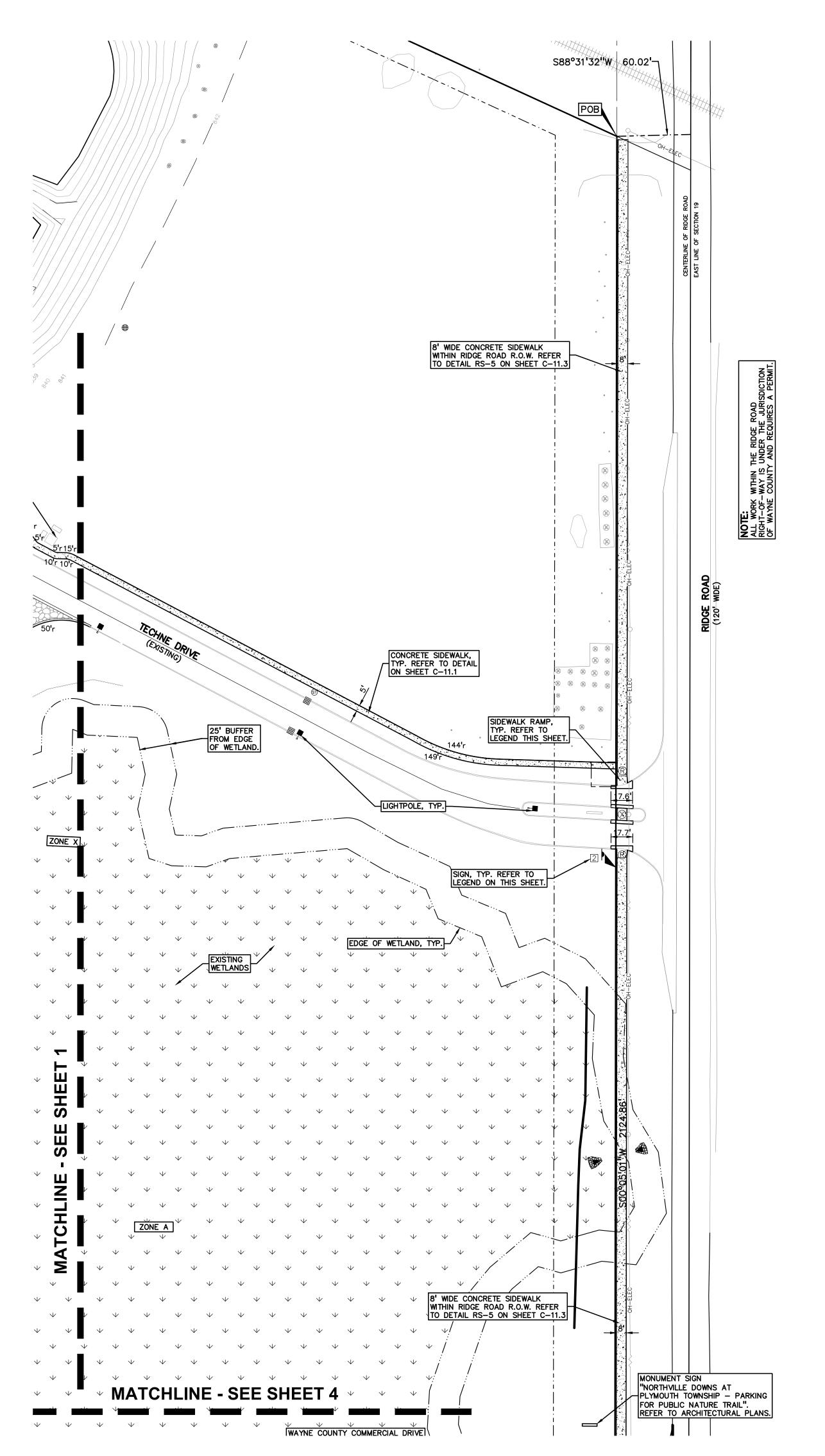
ORIGINAL ISSUE DATE: MARCH 31, 2023

**OVERALL SITE PLAN** 

PEA JOB NO. 2022-1338

BLA DRAWING NUMBER:





#### WAYNE COUNTY CONSTRUCTION NOTES:

- SAWCUT FULL DEPTH THE EXISTING PAVEMENT TO THE NEAREST JOINT WITHIN WAYNE COUNTY ROAD RIGHT-OF-WAY AND REMOVE THE EXISTING PAVEMENT AND CURBS AS DIRECTED BY WAYNE
- . CONSTRUCT WAYNE COUNTY ROAD PAVEMENT PER WAYNE COUNTY STANDARDS DETAIL "PR-1" OR "PR-2" AS APPLICABLE, OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- 3. PLACE 9" OF 21AA AGGREGATE COMPACTED TO MINIMUM 95% DENSITY OF MAXIMUM UNIT WEIGHT OR AS DIRECTED BY WAYNE COUNTY ENGINEER.

. CONSTRUCT WAYNE COUNTY ROAD PAVEMENT REPAIRS WITH MINIMUM OF 2.0" HMA TOP (F) ON

- MINIMUM 10" NON-REINFORCED CONCRETE WC 35 P MIX (3500 PSI AT 28 DAYS) AND INTEGRAL STRAIGHT CURB TYPE "4" AS PER WAYNE COUNTY STANDARD DETAIL "RS-3" OR AS DIRECTED BY WAYNE COUNTY ENGINEER. . TIE THE NEW PAVEMENT TO THE EXISTING PAVEMENT WITH #5 EPOXY COATED BARS AT MAXIMUM
- 43-INCH ON CENTER LONGITUDINALLY AND AT 18-INCH ON CENTER TRANSVERSELY AS PER WAYNE COUNTY STANDARD DETAIL "RS-2" OR AS DIRECTED BY THE COUNTY ENGINEER.
- 5. PLACE THE CONSTRUCTION JOINTS OF THE NEW PAVEMENT TO MATCH THE EXISTING PAVEMENT JOINTS OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- REPLACE ANY DAMAGED CURBS AS A RESULT OF THIS PROJECT ACTIVITY AS PER WAYNE COUNTY STANDARD DETAIL "D-7" OR AS DIRECTED BY THE COUNTY ENGINEER.
- 3. ANY DAMAGED UNDERDRAIN AS A RESULT OF THIS PROJECT ACTIVITY SHALL BE RECONSTRUCTED AS PER WAYNE COUNTY DETAIL "S-14" OR AS DIRECTED BY THE COUNTY ENGINEER.
- ). ANY DAMAGED SIDEWALK AS A RESULT OF THIS PROJECT ACTIVITY SHALL BE RECONSTRUCTED AS PER WAYNE COUNTY DETAIL "RS-5" OR AS DIRECTED BY THE COUNTY ENGINEER.
- 10. MAINTAIN A MAXIMUM 2% TRANSVERSE SLOPE ON THE SIDEWALK.
- 11. ANY DAMAGED SIDEWALK RAMPS SHOULD BE REPLACED TO MATCH THE ADA REQUIREMENTS AS PER MDOT STANDARD DETAIL "R-28-1".
- 12. STRUCTURE ADJUSTMENT SHALL BE DETERMINED AT THE SITE BY WAYNE COUNTY ENGINEER.
- 13. RELOCATE, RESTORE, OR REPLACE ANY TRAFFIC SIGNS THAT ARE AFFECTED BY THIS CONSTRUCTION AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- 14. RELOCATE ANY EXISTING UTILITY THAT IS IN CONFLICT WITH THE PROPOSED WORK AS DIRECTED BY THE COUNTY ENGINEER AND UTILITY COMPANY REPRESENTATIVE.

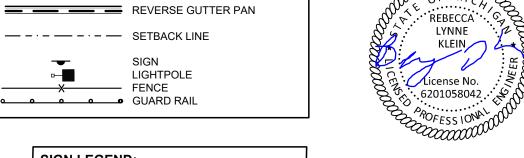
#### **PAVING NOTES:**

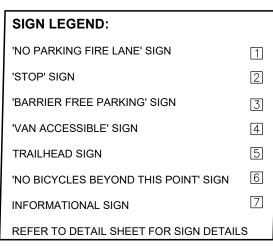
- IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
- REFER TO ARCHITECTURAL PLANS FOR DETAILS OF FROST SLAB AT EXTERIOR BUILDING CONSTRUCTION TRAFFIC SHOULD BE MINIMIZED ON THE NEW PAVEMENT. IF CONSTRUCTION
- TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, THE INITIAL LIFT THICKNESS COULD BE INCREASED AND PLACEMENT OF THE FINAL LIFT COULD BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. THIS ACTION WILL ALLOW REPAIR OF LOCALIZED FAILURE, IF ANY DOES OCCUR, AS WELL AS REDUCE LOAD DAMAGE ON THE PAVEMENT SYSTEM.
- . ALL EXPANSION JOINTS AND CONCRETE PAVEMENT JOINTS TO BE SEALED.
- CONCRETE CURBING JOINTING UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION 5.1. JOINTS WHEN ADJACENT TO ASPHALT PAVEMENT
- 5.1.1. PLACE CONTRACTION JOINTS AT 10' INTERVALS
- 5.1.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
- 5.1.3. PLACE 1" EXPANSION JOINT:
- 5.1.3.1. AT SPRING POINTS OF INTERSECTIONS OR ONE OF THE END OF RADIUS LOCATIONS IN A CURVE
- 5.1.3.2. AT 400' MAXIMUM INTERVALS ON STRAIGHT RUNS 5.1.3.3. AT THE END OF RADIUS AT OPPOSITE ENDS IN A CURBED LANDSCAPE ISLAND 5.2. JOINTS WHEN TIED TO CONCRETE PAVEMENT
- 5.2.1. PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN 5.2.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED
- SIDEWALK OR EXISTING CURBING. 5.2.3. PLACE 1" EXPANSION JOINT OPPOSITE ALL TRANSVERSE EXPANSION JOINTS IN
- PAVEMENT 5.2.4. CURB AND GUTTER AND CONCRETE SHALL BE TIED TOGETHER SIMILAR TO A
- LONGITUDINAL LANE TIE JOINT (MDOT B1 JOINT) 5.3. IN BETWEEN POURS OF PROPOSED CONCRETE CURBING (CONSTRUCTION JOINT):
- 5.3.1. CARRY THE REBAR CONTINUOUSLY BETWEEN POURS 5.3.2. IF THE REBAR IS NOT LONG ENOUGH TO CARRY CONTINUOUSLY, THEN TIE TWO PIECES OF REBAR PER THE LATEST MDOT SPECIFICATIONS
- CONCRETE SIDEWALK JOINTING UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED
- BY THE AUTHORITY HAVING JURISDICTION 6.1. PLACE TRANSVERSE CONTRACTION JOINTS EQUAL TO THE WIDTH OF THE WALK WHEN WIDTH IS LESS THAN 8' PLACE TRANSVERSE AND LONGITUDINAL CONTRACTION JOINTS EQUAL TO 1/2 THE WIDTH
- OF THE WALK WHEN WIDTH IS EQUAL TO OR GREATER THAN 8' 6.3. PLACE 1" EXPANSION JOINT WHERE ABUTTING SIDEWALK RAMP AND/OR RADIUS IN
- INTERSECTION PLACE TRANSVERSE 1/2" EXPANSION JOINT AT MAXIMUM OF 100' SPACING
- 6.5. PLACE 1/2" EXPANSION JOINT WHEN ABUTTING A FIXED STRUCTURE, OTHER PAVEMENT (CONCRETE PAVEMENT AND DRIVE APPROACHES), UTILITY STRUCTURES, LIGHT POLE BASES AND COLUMNS

## LEGEND: CONCRETE PAVEMENT ASPHALT PAVEMENT

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CONCRETE CURB AND GUTTER REVERSE GUTTER PAN — - · - — - · - — SETBACK LINE

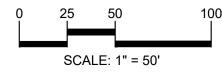




WARNING DETAILS

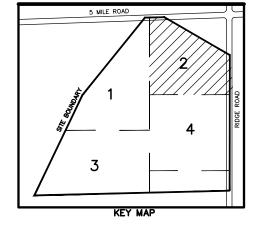
SIDEWALK RAMP LEGEND: SIDEWALK RAMP 'TYPE R' SIDEWALK RAMP 'TYPE P' CURB DROP ONLY REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE







CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY
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## **JR MILITELLO** REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

**NORTHVILLE** DOWNS AT PLYMOUTH TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI

REVISIONS

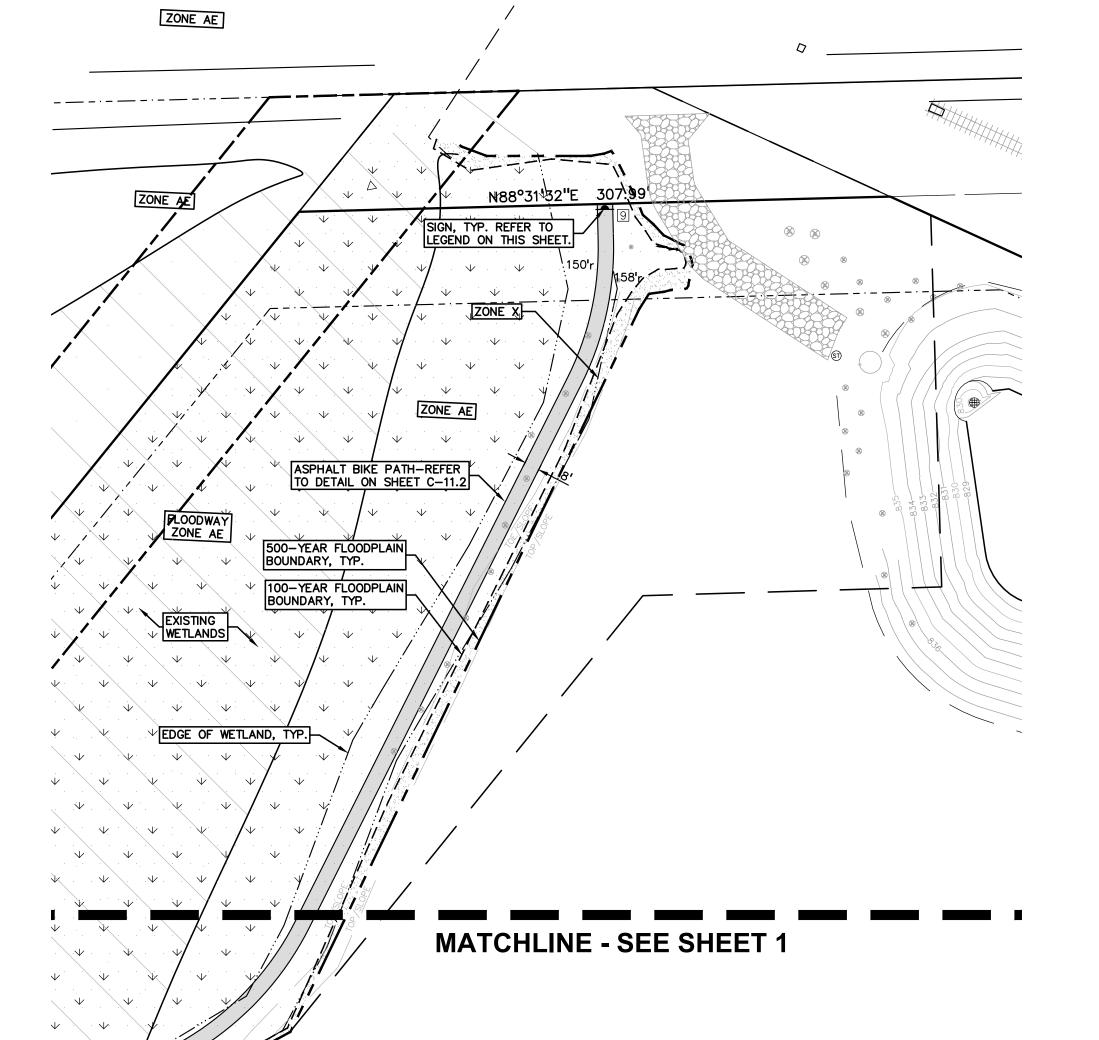
MARCH 31, 2023 DRAWING TITLE **DIMENSION AND** 

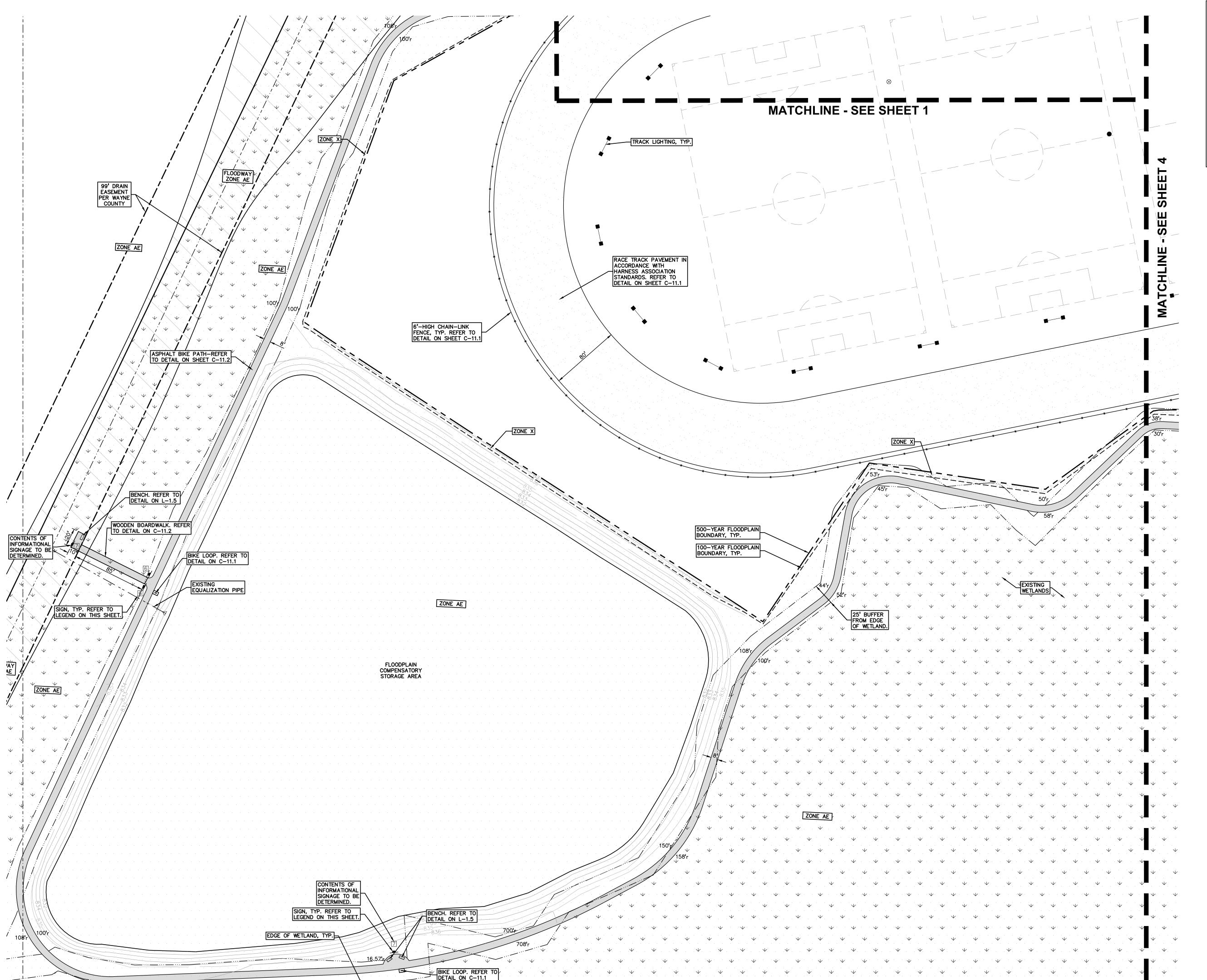
**PAVING PLAN - 2** 

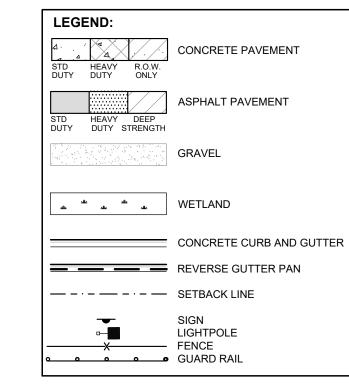
ORIGINAL ISSUE DATE:

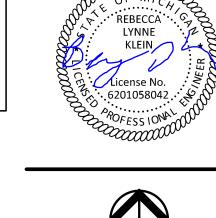
PEA JOB NO. 2022-1338

DRAWING NUMBER:









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SIGN LEGEND: 'NO PARKING FIRE LANE' SIGN 'STOP' SIGN 'BARRIER FREE PARKING' SIGN 'VAN ACCESSIBLE' SIGN TRAILHEAD SIGN 'NO BICYCLES BEYOND THIS POINT' SIGN INFORMATIONAL SIGN REFER TO DETAIL SHEET FOR SIGN DETAILS

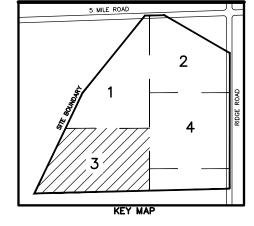
> REFER TO SHEET C-3.2 FOR GENERAL PAVING NOTES.

REFER TO SHEET C-3.2 FOR WAYNE COUNTY CONSTRUCTION NOTES

NOTE:

SCALE: 1" = 50'

CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

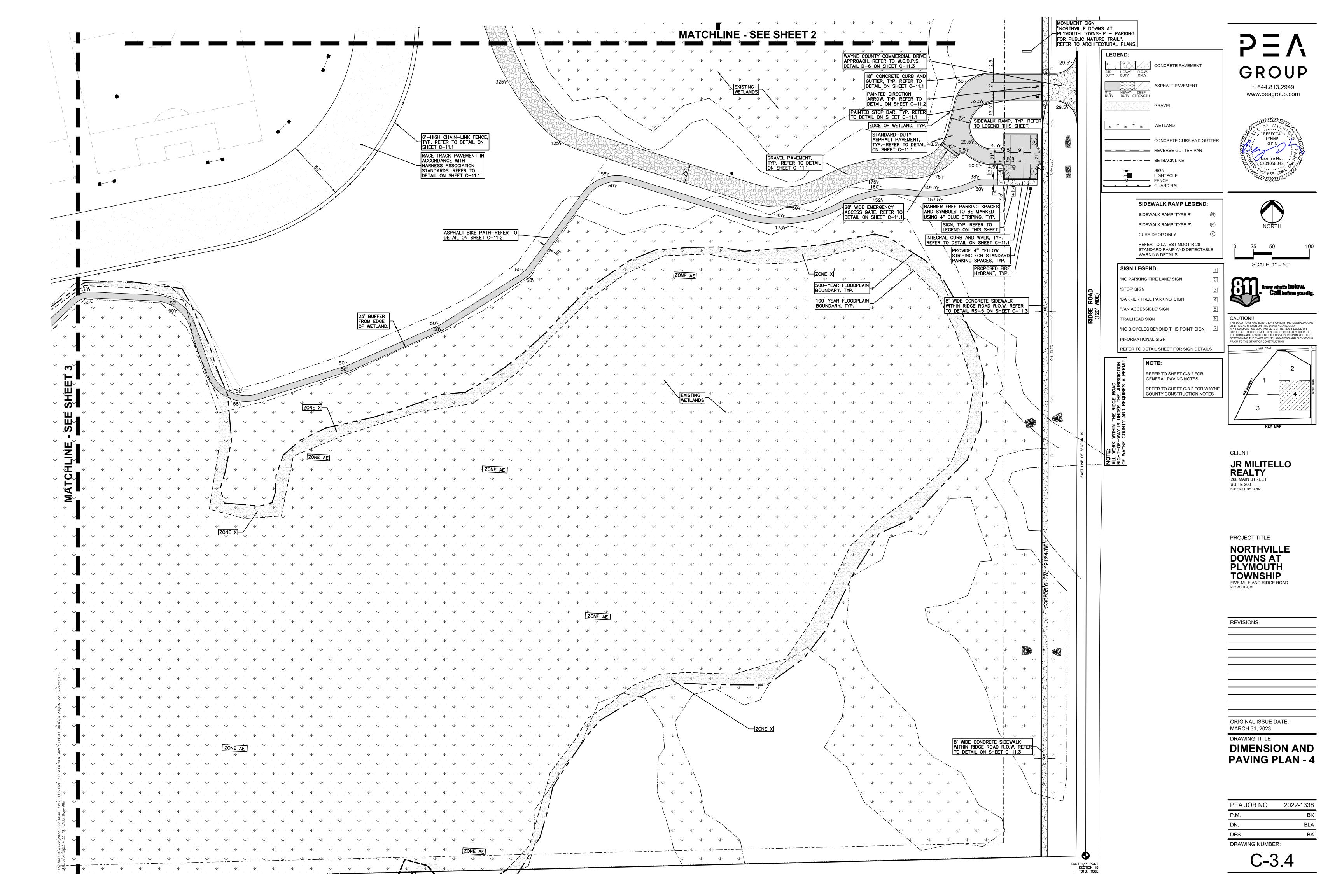
PROJECT TITLE NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS
<u> </u>

DRAWING TITLE **DIMENSION AND PAVING PLAN - 3** 

ORIGINAL ISSUE DATE: MARCH 31, 2023

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
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JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE

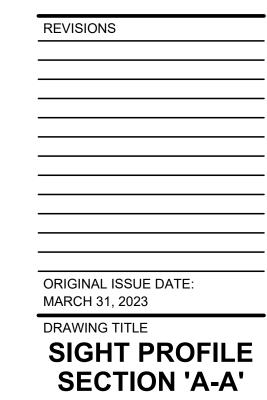
DOWNS AT

PLYMOUTH

TOWNSHIP

FIVE MILE AND RIDGE ROAD

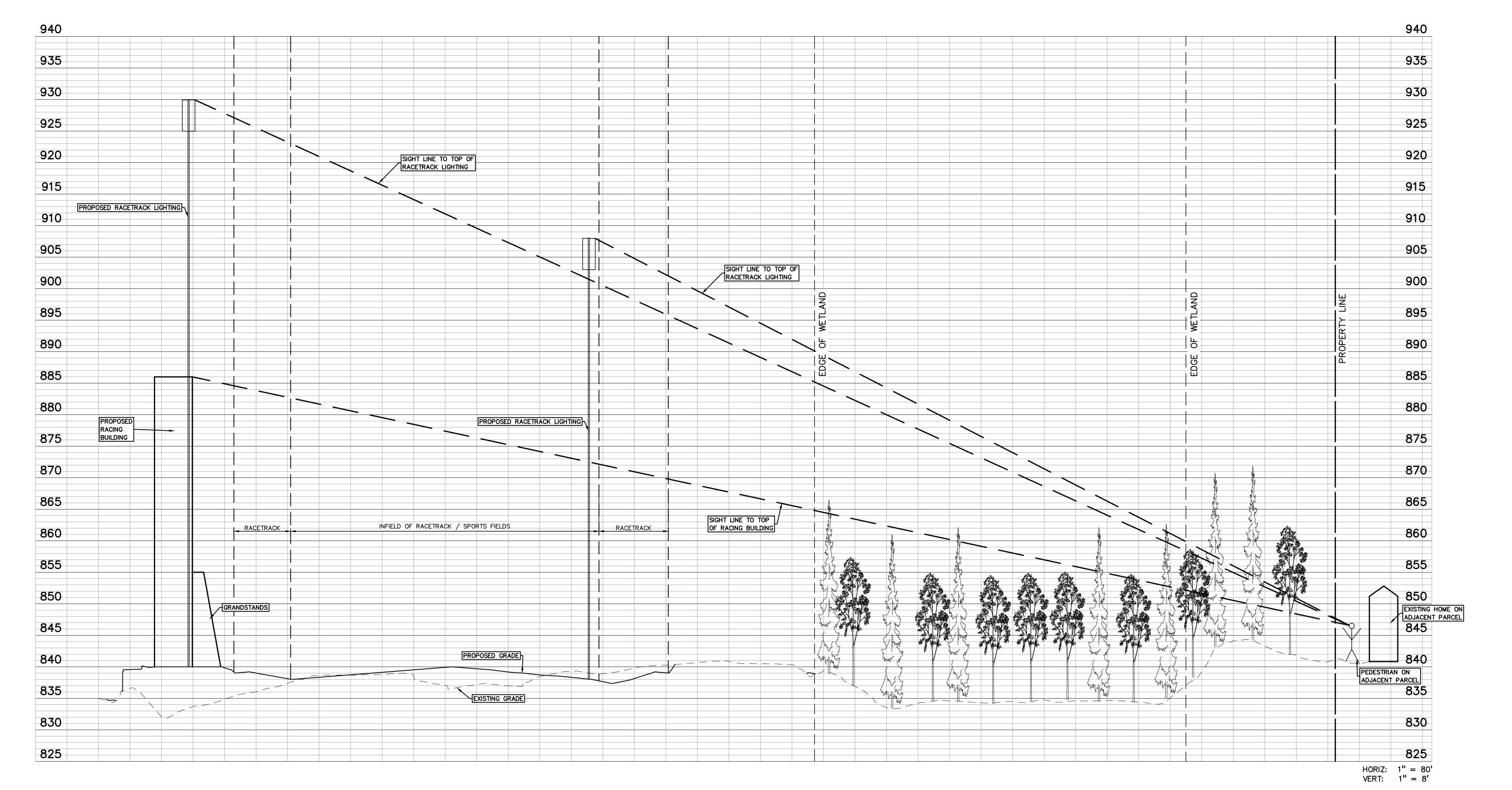
PLYMOUTH, MI

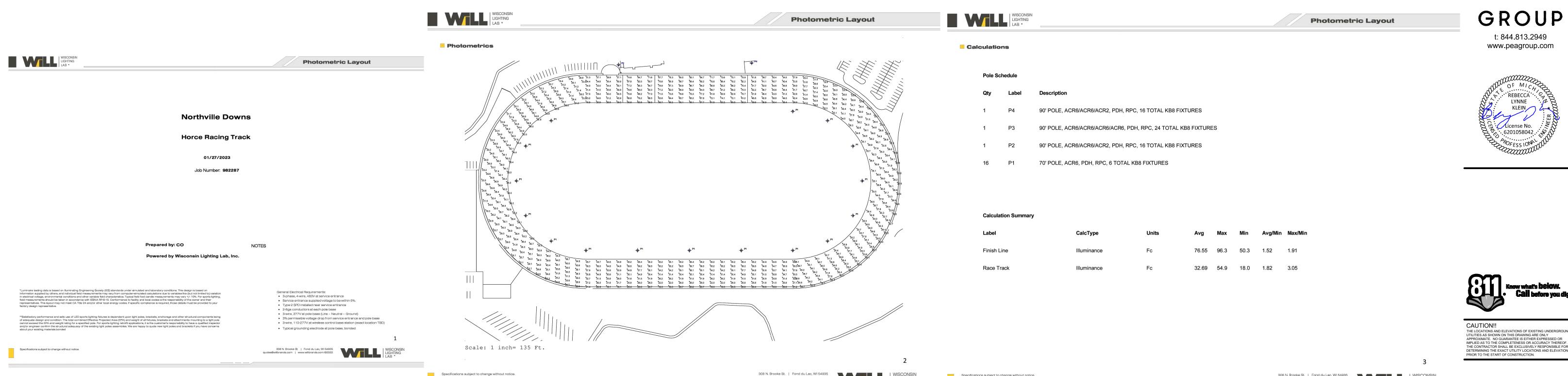


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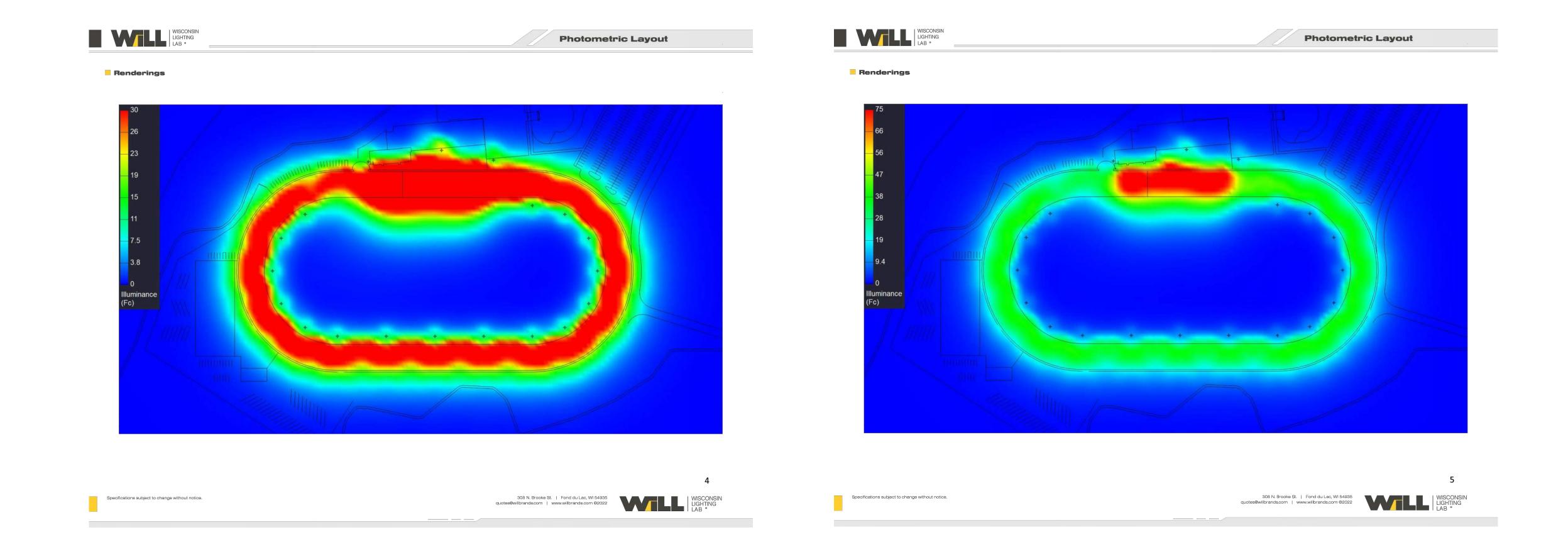
DES.
DRAWING NUMBER:

S:\PROJECTS\2022\2022-1338 RIDGE ROAD INDUSTRIAL REDEVELOPMENT\DWG\CONSTRUCTION\(C-3.1)SIGHT PROFILE-22-1338.dwg PLOT DATE:3/31/2023 3:44 PM BY:Brittany Allen









CLIENT JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

**STADIUM LIGHTING PLAN** 

PEA JOB NO.	2022-133
P.M.	ВІ
DN.	BL
DES.	ВІ
DRAWING NUMBER:	

Part # Description WS-GFX WiLLsport™ GFX Wireless Lighting System WS-GFX-WLC Wireless Lighting Console WS-GFX-SCORE Touchscreen + Tabletop/Wall Mount





WS-GFX-WLC

Specifications - Console

**Input Voltage** 

Operating

Environment

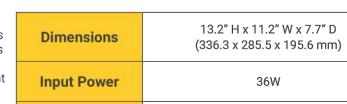
## Highlights

The WiLLsport GFX Wireless Lighting Console is the central point of control for your lighting system. Boasting multiple user interface options and a powerful built-in lighting engine, this secure onsite device provides round-the-clock control of athletic lighting applications. The factorycommissioned lighting platform offers plug-and-play access to bold light shows and automated scheduling capabilities. With wired and wireless configuration options, it's suitable for both retrofit and new installations.

#### Features

- Designed, engineered, and assembled in Wisconsin, USA from
- premium domestic and imported components
- Factory commissioned
- Multiple touch screen mounting options Reliable wireless lighting system control
- Built-in entertainment programs
- · Automated simple-scheduling features Sub-field zone control
- Local on-site security
- IP67 rated outdoor enclosure
- RGB lighting control ready

Specifications subject to change without notice. Rev. V08092022 Page: 2 of 13



# Radio 2.4 GHz CRMX

120V AC

0 to 45 °C;

10 to 90% non-condensing

WISCONSIN LIGHTING LAB*	Indoor/Outdoor

Willsport™ **KBX** LED LIGHTING W/ OPTIONAL **RPCX** REMOTE PWR-CTL SYSTEM

Intertek S



Compliance & Warranty

Remote power-control: pending

· Meets Buy American Act requirements

Light Engine & Electrical

lighting transmittance

modes dimmable (optional)

Total harmonic distortion of 20% max

Always-on auxiliary power: 12VDC, 200mA

Licensed electrician required for installation

Power & Control Options

RGB color mixing and DMX integrations

· Dynamic scene entertainment packages

· Wired and wireless configurations available

Turnkey factory commissioning with on site support options

Aluminum, steel, fiberglass, and concrete materials

Dedicated light pole application support team

Custom fabrication, finishing, and accessories available

Power factor of 0.90 min

10kV per EN 61000-4-5

Standard 5-year limited warranty with extended factory warranties available

board to deliver compact lumen density and added reliability

Standard AC input voltage of 120-277V 50/60 Hz; up to 480V available

KB4&6: Thermally protected secondary 20kA surge suppression (optional)

KB8: Thermally protected secondary 10kA surge suppression (optional)

-40°C to +50°C ambient operating temperature options

· Premium high-efficiency Chip-on-Board (COB) LEDs wired and bonded directly to circuit

Self-sealing optical assembly constructed of optical-grade silicone with 93% typical

Isolated 0-10V dim-to-off with standby power ≤ 1.5W (standard) and PWM/3-timer-

Drivers include integral input Surge Protection of Differential Mode 6kV, Common Mode

Local specifying engineer recommended for product selection and local compliance

Synapse® wireless system for large-scale control of zones, dimming, schedules, and

WiLL offers one of the most comprehensive light pole, bracket, and arm catalogs in the

## Highlights

- Designed, engineered, and manufactured in Wisconsin, USA from premium domestic and ETL Certification for UL STD 1598 & CSA STD C22.2 # 250.0 for dry/damp/wet locations imported components
- IES files, photometric reports, and lighting simulations available from factory design
- Output options up to 115,000 lumens Easy driver and LED module access for technology upgrades and maintenance
- Remote power-control industrial cabinet options from factory Wireless control options including entertainment, RGB, dimming, zones, and schedules Pre-aimed adjustable mount according to factory lighting design

#### Rugged aluminum chassis construction with integrated GlareKiller system Applications

- Outdoor sports and entertainment facilities
- Indoor sports arenas and venues Retrofit and new installs
- Hometown ball fields Professional sports complexes General high-output flood and area lighting

## Airports, military, and infrastructure projects

calculated L70 LED life over 200,000 hours

- Construction & Finish (Light Fixture) Rugged aluminum chassis with excellent heat/impact resistance and hinged electrical
- Proprietary anodized heat sink design with thermally isolated LED modules resulting in
- Standard powder coat facilities are UL1332 (DTVV2) certified for application of organic finish coatings for outdoor enclosures Anodized light engine plate and heat sinks meet MIL-A-8625 Type II (Class 1 & 2)
- standards and are RoHS, REACH, ELV, and WEEE compliant High-grade stainless steel hardware for superior strength and corrosion resistance Driver components are fully encased in potting material for moisture and vibration resistance

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Bottom cabinet(s): Aluminum industrial power-control cabinet with NEMA 3R rating

Small, medium, large, and custom cabinet configurations available

Construction & Finish (Optional Remote PWR-CTL)

Top distribution hub(s): Polycarbonate enclosure with NEMA 1, 2, 4, 4X, and IP66 rating

Standard powder coat facilities are UL1332 (DTVV2) certified for application of organic

finish coatings for outdoor enclosures High-grade stainless steel hardware for superior strength and corrosion resistance See drawings below for additional component and wiring details





Lighting System Controls

WISCONSIN LIGHTING LAB\*

The intuitive user interface provides multiple points of control and automation for the lighting system.

### Simple Scheduling Functionality Automate your field lighting with simple scheduling functionality builtinto the GFX lighting control system. Common scheduling examples

 Timer with 2-minute dim warning Sunrise, sunset, and/or time-triggered lighting events

### Recurring events (daily/weekly) Calendar event scheduling

Coordinated entertainment programs to add a show-stopping element to your athletic facility.

Factory-Commissioned Entertainment Programs

- **Lightning** All fixtures randomly turn ON/OFF to create a camera flash effect on the playing field. • Tornado - All fixtures adjust light levels to create a swirling effect
- around the playing field. Night Rider - All fixtures adjust light levels to create a back and forth effect across the playing field. • Pulse - All fixtures simultaneously increase and decrease light levels

to create a pulsing effect on the playing field.

## Scene Control

Put focus on the action before/during/after the game with scene control.

- Gametime
- Player Intros
- Halftime Show National Anthem
- Game Over / Security Lighting

## Multi-Field Control

- Utilize WiLL's GFX technology to control multiple fields or facility resources with the same system.
- · Wagon-wheel ballfield configurations Multi-field athletic complexes
- Multi-sport facilities
- Site support lighting (walkways, area lighting, etc)

## Direct factory integration + support

Wireless and/or wired RGB lighting control

Great for accent + architectural applications

Enhance your lighting application with the addition of dynamic color

Indoor/Outdoor Sports

RGB Ready

Millions of colors

control to your GFX system.

**LED Lighting Controls** 

7.0" H x 9.9" W x 0.9" D

(178mm x 252mm x 24mm)

18W max

12V/2A AC/DC Adapter supplied

0 to 45 °C;

10 to 90% non-condensing

802.11 a/b/g/n/ac

FCC, CE, & RoHS

13.24"

7.70"

Specifications - Touchscreen

Dimensions

Input Power

Input Voltage

Operating

Environment

Radio

Certifications

Dimensional Diagrams



Rev. V08092022 Page: 3 of 13

Base Model	0° Tilt	10° Down Tilt	20° Down Tilt	25° Down Tilt	15° Up Tilt	25° Up Til
WS-KB4	1.39	1.39	1.39	1.39	1.39	1.46
WS-KB6	1.43	1.39	1.39	1.57	1.7	2.1
WS-KB8	1.85	1.54	1.69	2.06	2.26	2.75

					Full Whi	te	
Base Model	Fixture Weight (Onboard Drivers) (lb)	Fixture Weight (Remote Drivers) (lb)	System Watts (W)	Engine Qty	Drive Current (A)	Lumens	lm/W
WS-KB4-470	38	32	442	4	2.0	57,700	131
WS-KB6-630	49	41	628	6	1.9	85,000	135
WS-KB8-940	63	51	884	8	2.0	115,000	130

Full RGB Tuning											
Base Model	Fixture Weight	Fixture Weight	System Watts	Engine	Drive Current	Max RED Esti	mate (629nm typ.)	Max GREEN E	stimate (530nm typ.)	Max BLUE Est	imate (475nm typ.
base Model	(Onboard Drivers) (lb)	(Remote Drivers) (lb)	(W)	Qty	(A)	Lumens	Im/W	Lumens	lm/W	Lumens	lm/W
WS-KB4-250	38	32	246	4	0.5	5,768	64	8,060	106	3,392	42
WS-KB6-370	49	41	370	6	0.5	8,652	64	12,090	106	5,088	42
WS-KB8-500	63	51	493	8	0.5	11,536	64	16,120	106	6,784	42

White + RGB Combo Tuning													
Base Model	Fixture Weight (Onboard Drivers) (lb)	Fixture Weight (Remote Drivers) (Ib)	System Watts	Engine Qty	Engine Qty	Max RED E (629nm	-	Max GREEN (530nr			E Estimate m typ.)	Max WHIT	E Estimate
	(Onboard Drivers) (Ib)	(Remote Drivers) (Ib)	(W)	(WHITE) (RGB)	Lumens	lm/W	Lumens	Im/W	Lumens	lm/W	Lumens	Im/W	
WS-KB4-360	38	32	358	2	2	2,884	64	4,030	106	1,696	42	28,850	131
WS-KB6-520	49	41	519	3	3	4,326	64	6,045	106	2,544	42	42,500	135
WS-KB8-715	63	51	716	4	4	5,768	64	8,060	106	3,392	42	57,500	130

Note: Typical lumen values are based on lab and simulated photometric tests. Actual performance may differ resulting from optical configuration, color temp and CRI, glare management, owner environment, and Note: Data based on 25°C ambient operating temperature.

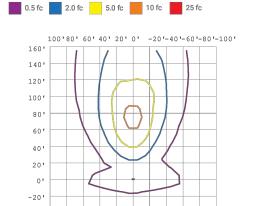
## Lumen Multiplier & Maintenance (Full WHITE)

Ambient Temperature	Lumen Multiplier	TM-21 Lumen Maintenance (50,000 Hours)	Calculated L90 (hrs)	Calculated L70 (hrs)
0°C / 32°F	1.04	91.71	60,000	206,000
10°C / 50°F	1.02	91.71	60,000	206,000
25° C / 77°F	1.00	91.71	60,000	206,000
30°C / 86°F	0.99	91.71	60,000	206,000
35°C / 95°F	0.99	90.95	55,000	188,000
40° C / 104°F	0.98	90.12	50,000	171,000
45° C / 113°F	0.96	89.26	46,000	157,000
E000 / 4000E	0.04	00.05	40.000	444000

C	urrent (A)		
Voltage	442W	628W	884W
Input Current @ 120V (A)	3.68	5.23	7.37
Input Current @ 208V (A)	2.13	3.02	4.25
Input Current @ 240V (A)	1.84	2.62	3.68
Input Current @ 277V (A)	1.60	2.27	3.19
Input Current @ 347V (A)	1.27	1.81	2.55
Input Current @ 480V (A)	0.92	1.31	1.84

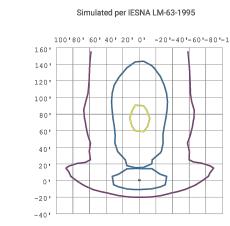
50°C / 122°F 0.96 88.35 42,000 144,000 Note: Values calculated according to IESNA TM-21-11 methodology.

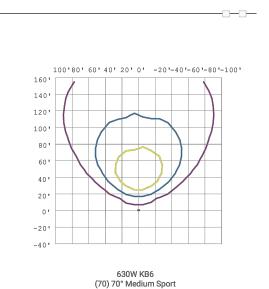
## Photometric Diagrams



(5N) 25° Narrow Spor

50' Height @ 0° Up Tilt





(45) 45° Narrow Sport 50' Height @ 0° Up Tilt

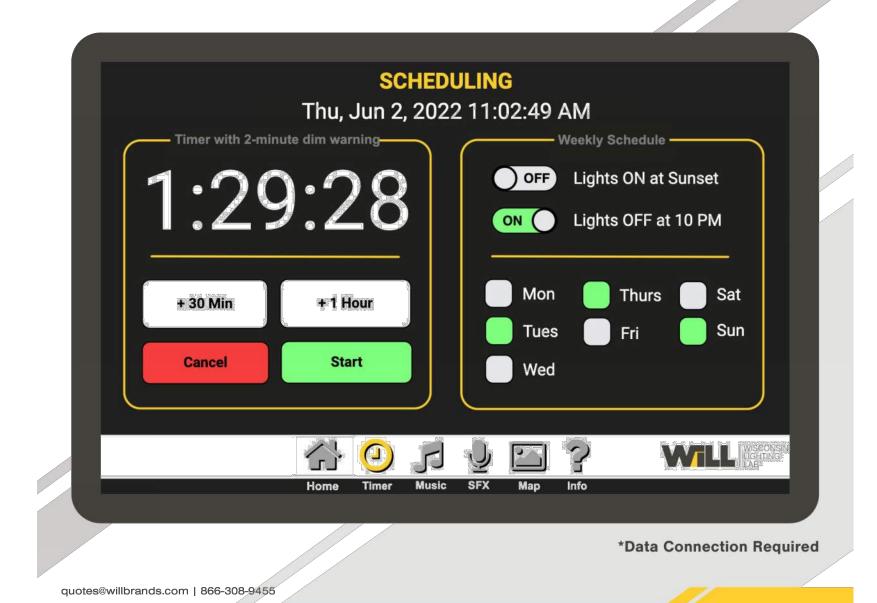
Scheduling Functionality + Support

#### SIMPLE SCHEDULING BUILT-IN **FACTORY SUPPORTED SCHEDULING SERVICES\***

- Sunrise, Sunset, and/or Time-Triggered Lighting **Events**
- On/Off Timers with 2-Minute Dim Warning for **Facility Users**

Willsport

- Calendar Event Scheduling
- Recurring Events (Daily/Weekly/ Monthly)
  - Contact WiLL's Dedicated Factory **Support Team**
  - applications@willbrands.com
  - (866) 308-9455



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CLIENT **JR MILITELLO REALTY** 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

**NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

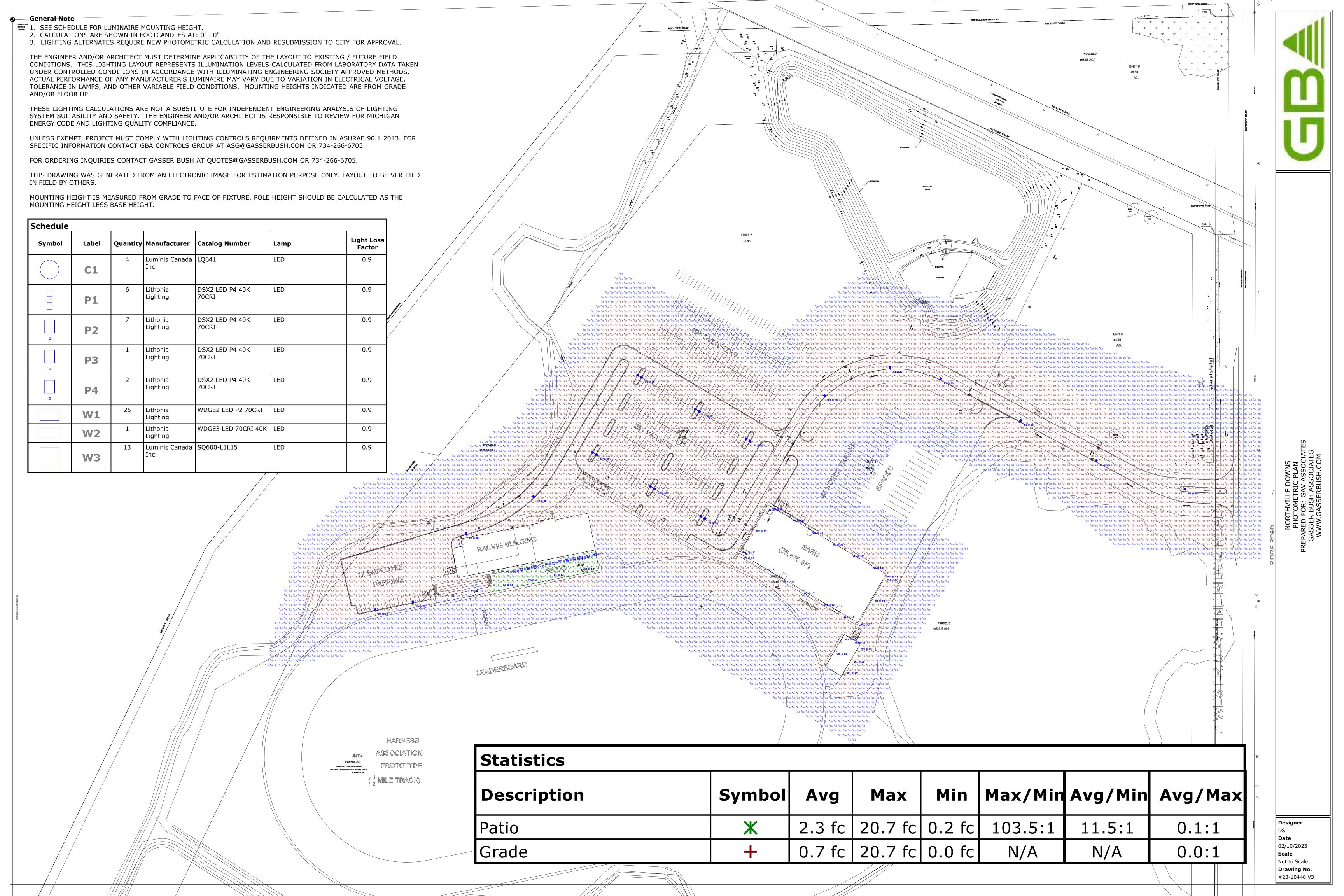
REVISIONS

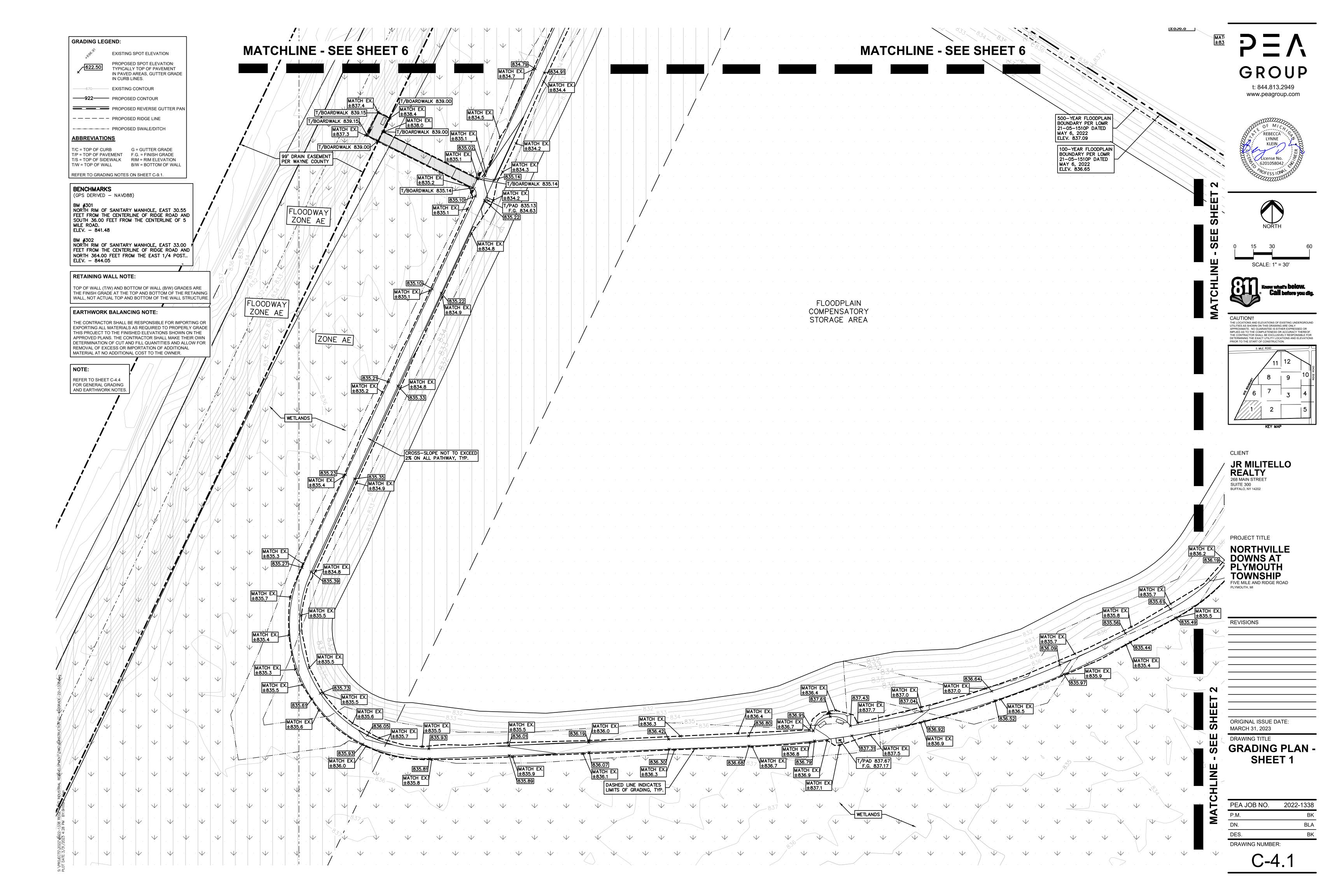
ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

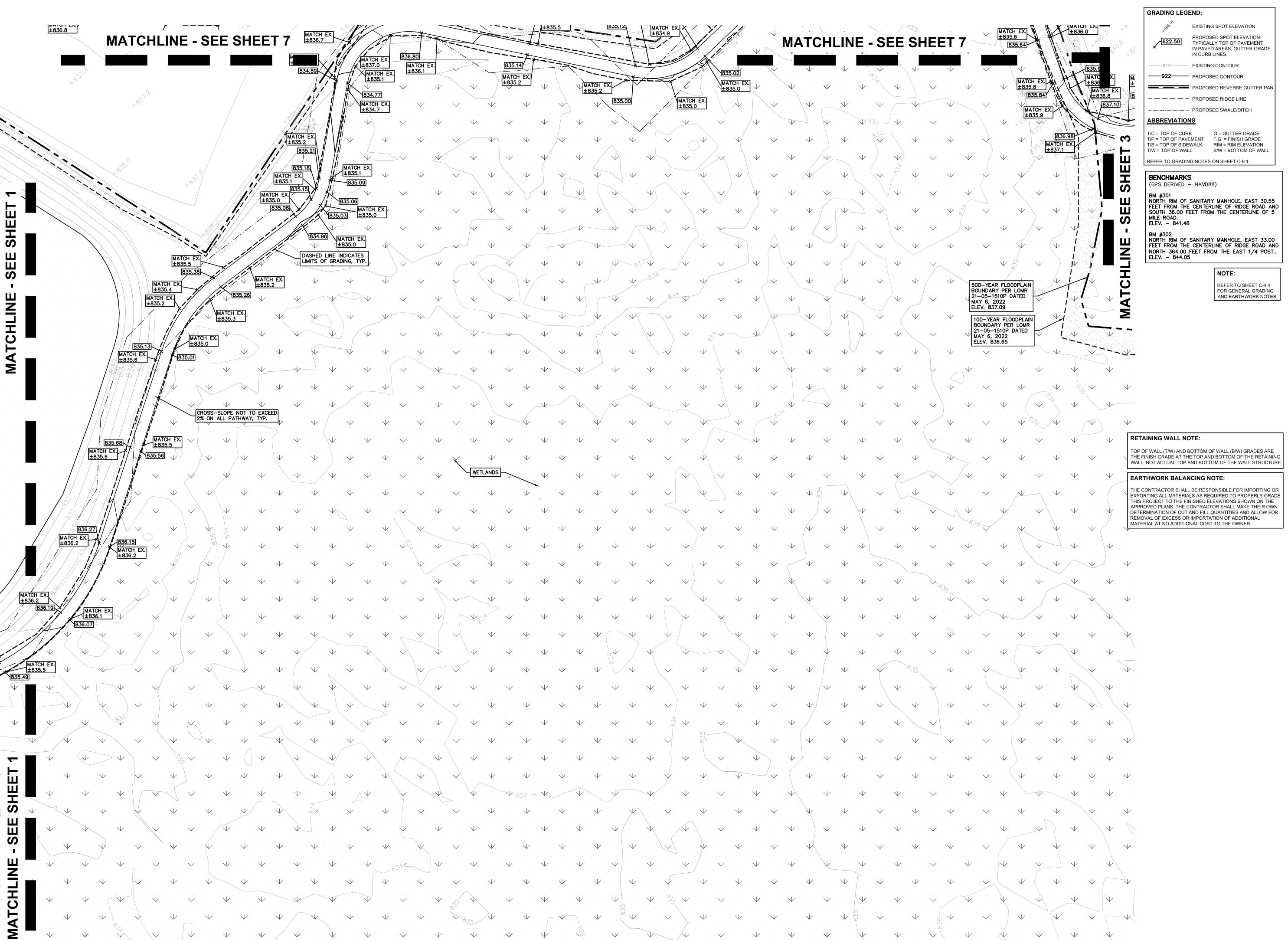
**STADIUM** LIGHTING **CONTROLS** 

PEA JOB NO. 2022-1338 BLA DES.

DRAWING NUMBER:

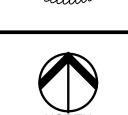










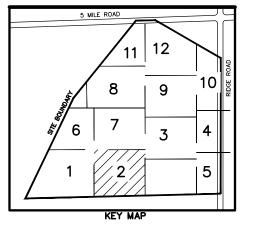








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TOP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL, NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR

CLIENT

JR MILITELLO **REALTY** 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

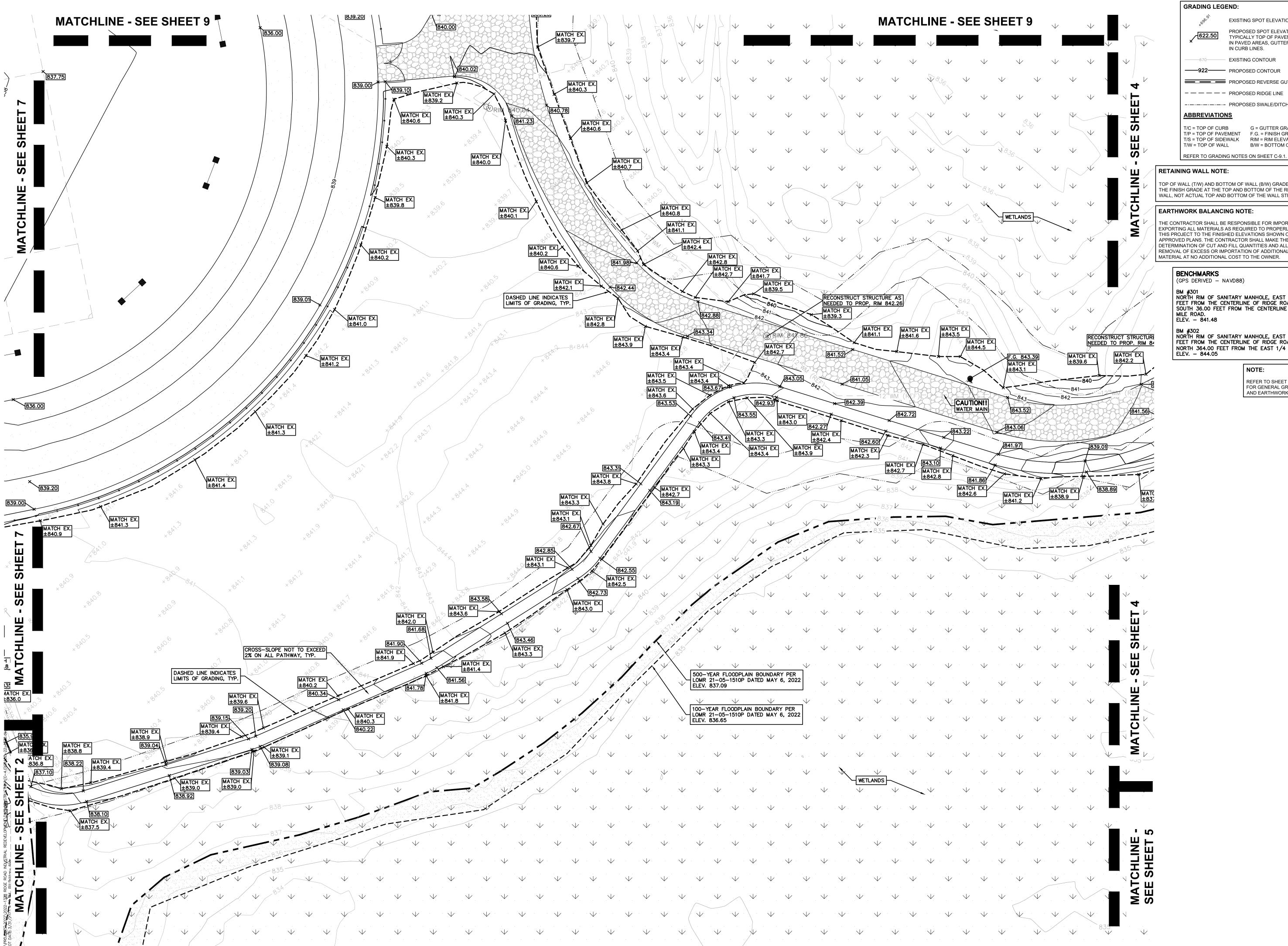
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

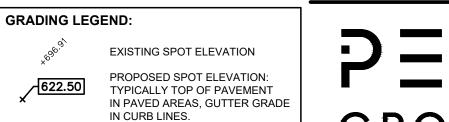
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REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

**GRADING PLAN -**SHEET 2

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER	R:





EXISTING CONTOUR —922— PROPOSED CONTOUR

PROPOSED REVERSE GUTTER PAI - - - - PROPOSED RIDGE LINE

----- PROPOSED SWALE/DITCH **ABBREVIATIONS** 

G = GUTTER GRADE T/C = TOP OF CURB T/P = TOP OF PAVEMENT F.G. = FINISH GRADE T/S = TOP OF SIDEWALK RIM = RIM ELEVATION T/W = TOP OF WALL B/W = BOTTOM OF WALL

### **RETAINING WALL NOTE:**

OP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL, NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE

#### EARTHWORK BALANCING NOTE:

HE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

**BENCHMARKS** 

(GPS DERIVED - NAVD88)

BM #301
NORTH RIM OF SANITARY MANHOLE, EAST 30.55
FEET FROM THE CENTERLINE OF RIDGE ROAD AND
SOUTH 36.00 FEET FROM THE CENTERLINE OF 5 MILE ROAD. ELEV. - 841.48

BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. — 844.05

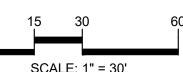
> NOTE: REFER TO SHEET C-4.4 FOR GENERAL GRADING AND EARTHWORK NOTES.

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CAUTION!! DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

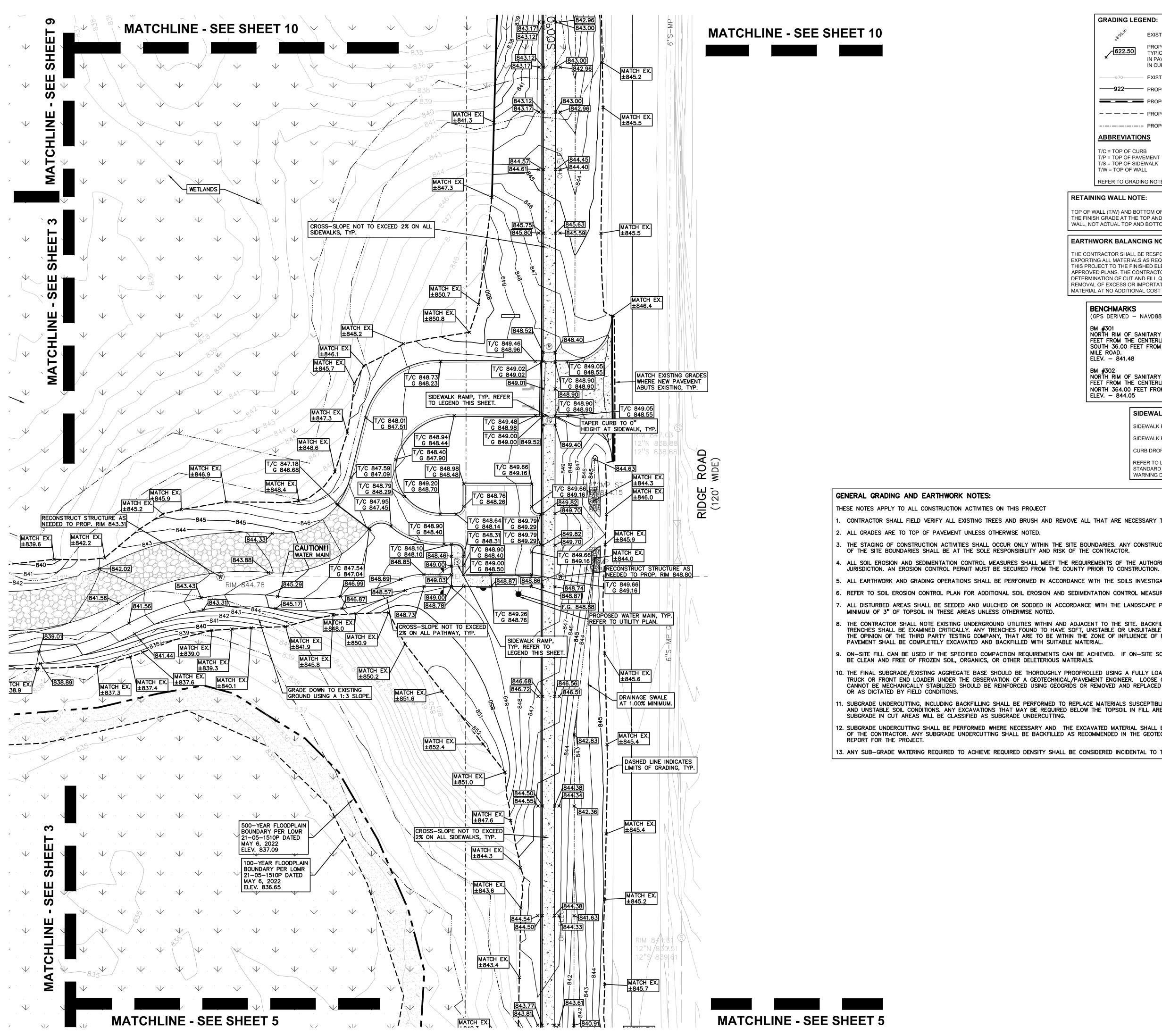
PROJECT TITLE NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI

REVISIONS	

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

**GRADING PLAN -**SHEET 3

PEA JOB NO. 2022-1338 BLA DRAWING NUMBER:



**GRADING LEGEND:** 

EXISTING SPOT ELEVATION PROPOSED SPOT ELEVATION:

IN PAVED AREAS, GUTTER GRADE IN CURB LINES. **EXISTING CONTOUR** 

TYPICALLY TOP OF PAVEMENT

——922—— PROPOSED CONTOUR

PROPOSED REVERSE GUTTER PAI - - - - PROPOSED RIDGE LINE

----- PROPOSED SWALE/DITCH

### **ABBREVIATIONS**

T/C = TOP OF CURB T/P = TOP OF PAVEMENT F.G. = FINISH GRADE T/S = TOP OF SIDEWALK RIM = RIM ELEVATION T/W = TOP OF WALL B/W = BOTTOM OF WALL

REFER TO GRADING NOTES ON SHEET C-9.1.

#### **RETAINING WALL NOTE:**

TOP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING VALL, NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE

#### **EARTHWORK BALANCING NOTE:**

HE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OF EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE HIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

**BENCHMARKS** 

(GPS DERIVED - NAVD88)

NORTH RIM OF SANITARY MANHOLE, EAST 30.55 FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5 MILE ROAD. ELEV. - 841.48

BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. - 844.05

## SIDEWALK RAMP LEGEND: SIDEWALK RAMP 'TYPE R'

SIDEWALK RAMP 'TYPE P' CURB DROP ONLY

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

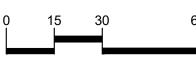
THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

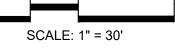
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
- . ALL GRADES ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
- . THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE AUTHORIZED PUBLIC AGENCY OF
- . ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND REPORT.
- . REFER TO SOIL EROSION CONTROL PLAN FOR ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND NOTES.
- ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL, IN THE OPINION OF THE THIRD PARTY TESTING COMPANY, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR
- ON-SITE FILL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON-SITE SOIL IS USED, IT SHOULD
- BE CLEAN AND FREE OF FROZEN SOIL, ORGANICS, OR OTHER DELETERIOUS MATERIALS. 10. THE FINAL SUBGRADE/EXISTING AGGREGATE BASE SHOULD BE THOROUGHLY PROOFROLLED USING A FULLY LOADED TANDEM AXLE TRUCK OR FRONT END LOADER UNDER THE OBSERVATION OF A GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHOULD BE REINFORCED USING GEOGRIDS OR REMOVED AND REPLACED WITH ENGINEERED FILL
- . SUBGRADE UNDERCUTTING, INCLUDING BACKFILLING SHALL BE PERFORMED TO REPLACE MATERIALS SUSCEPTIBLE TO FROST HEAVING AND UNSTABLE SOIL CONDITIONS. ANY EXCAVATIONS THAT MAY BE REQUIRED BELOW THE TOPSOIL IN FILL AREAS OR BELOW SUBGRADE IN CUT AREAS WILL BE CLASSIFIED AS SUBGRADE UNDERCUTTING.
- 2. SUBGRADE UNDERCUTTING SHALL BE PERFORMED WHERE NECESSARY AND THE EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY SUBGRADE UNDERCUTTING SHALL BE BACKFILLED AS RECOMMENDED IN THE GEOTECHNICAL ENGINEERING
- 13. ANY SUB-GRADE WATERING REQUIRED TO ACHIEVE REQUIRED DENSITY SHALL BE CONSIDERED INCIDENTAL TO THE JOB.

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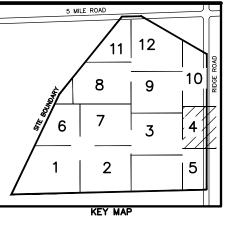








CAUTION!! PRIOR TO THE START OF CONSTRUCTION.



#### **REALTY** 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE **NORTHVILLE DOWNS AT PLYMOUTH** FIVE MILE AND RIDGE ROAD

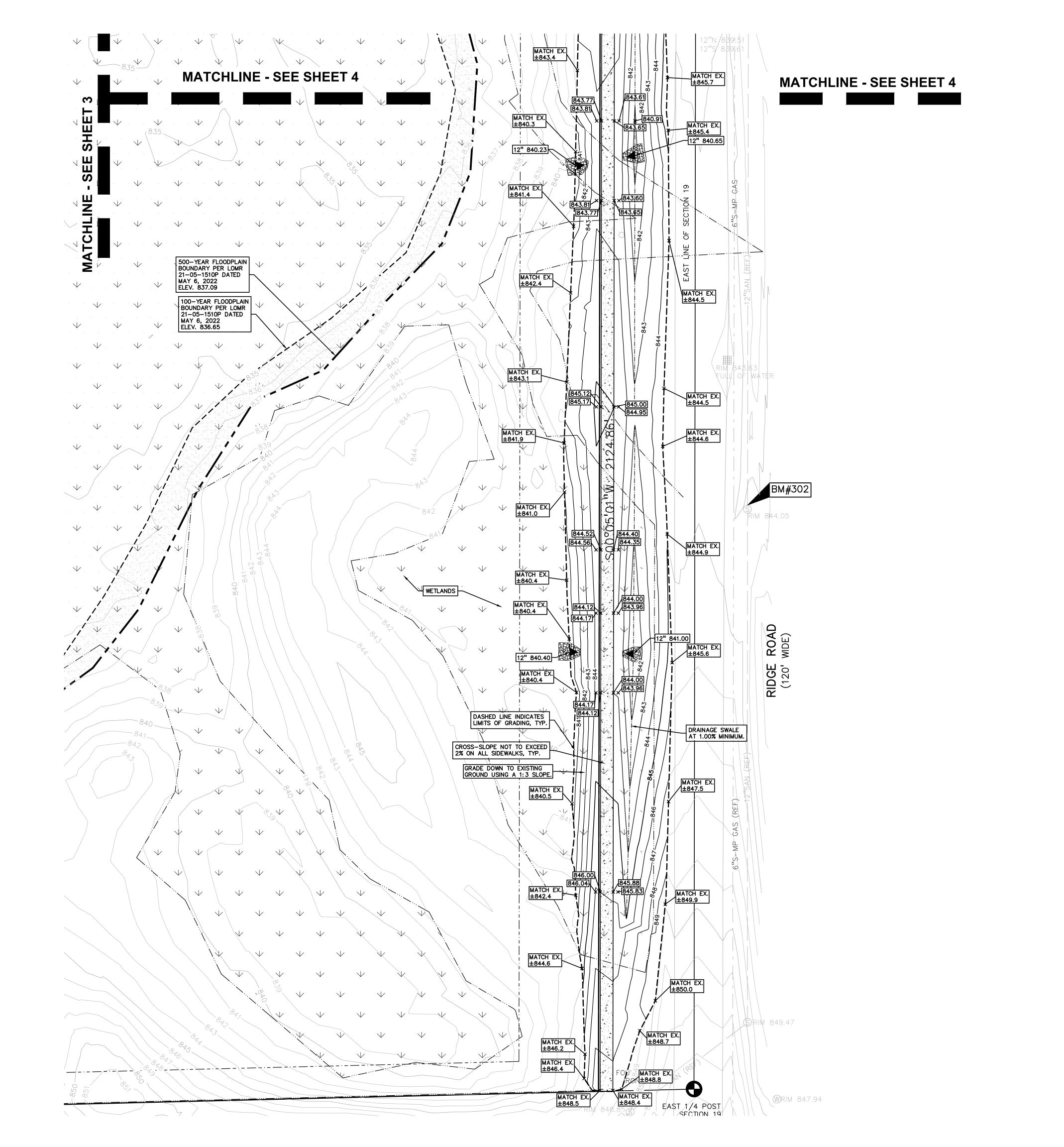
REVISIONS

PLYMOUTH, MI

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE **GRADING PLAN -**SHEET 4

PEA JOB NO. 2022-1338 BLA DRAWING NUMBER:



#### **GRADING LEGEND:**

EXISTING SPOT ELEVATION PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE

IN CURB LINES. EXISTING CONTOUR

——922—— PROPOSED CONTOUR PROPOSED REVERSE GUTTER PAN

- - - PROPOSED RIDGE LINE

#### ----- PROPOSED SWALE/DITCH **ABBREVIATIONS**

T/C = TOP OF CURB G = GUTTER GRADE T/P = TOP OF PAVEMENT F.G. = FINISH GRADE T/S = TOP OF SIDEWALK RIM = RIM ELEVATION T/W = TOP OF WALL B/W = BOTTOM OF WALL

REFER TO GRADING NOTES ON SHEET C-9.1.

#### RETAINING WALL NOTE:

TOP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL, NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE

#### EARTHWORK BALANCING NOTE:

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BENCHMARKS

(GPS DERIVED - NAVD88)

BM #301 NORTH RIM OF SANITARY MANHOLE, EAST 30.55 FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5 MILE ROAD. ELEV. — 841.48

BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. — 844.05

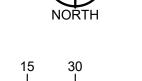
NOTE: REFER TO SHEET C-4.4 FOR GENERAL GRADING AND EARTHWORK NOTES.

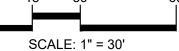




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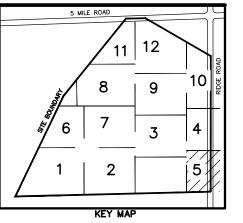








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CLIENT

# JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

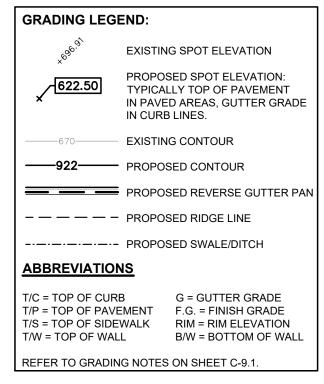
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

GRADING PLAN -SHEET 5

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
DRAWING NUMBER:	



### BENCHMARKS

(GPS DERIVED - NAVD88)

BM #301 NORTH RIM OF SANITARY MANHOLE, EAST 30.55 FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5 MILE ROAD. ELEV. — 841.48

BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. — 844.05

#### RETAINING WALL NOTE:

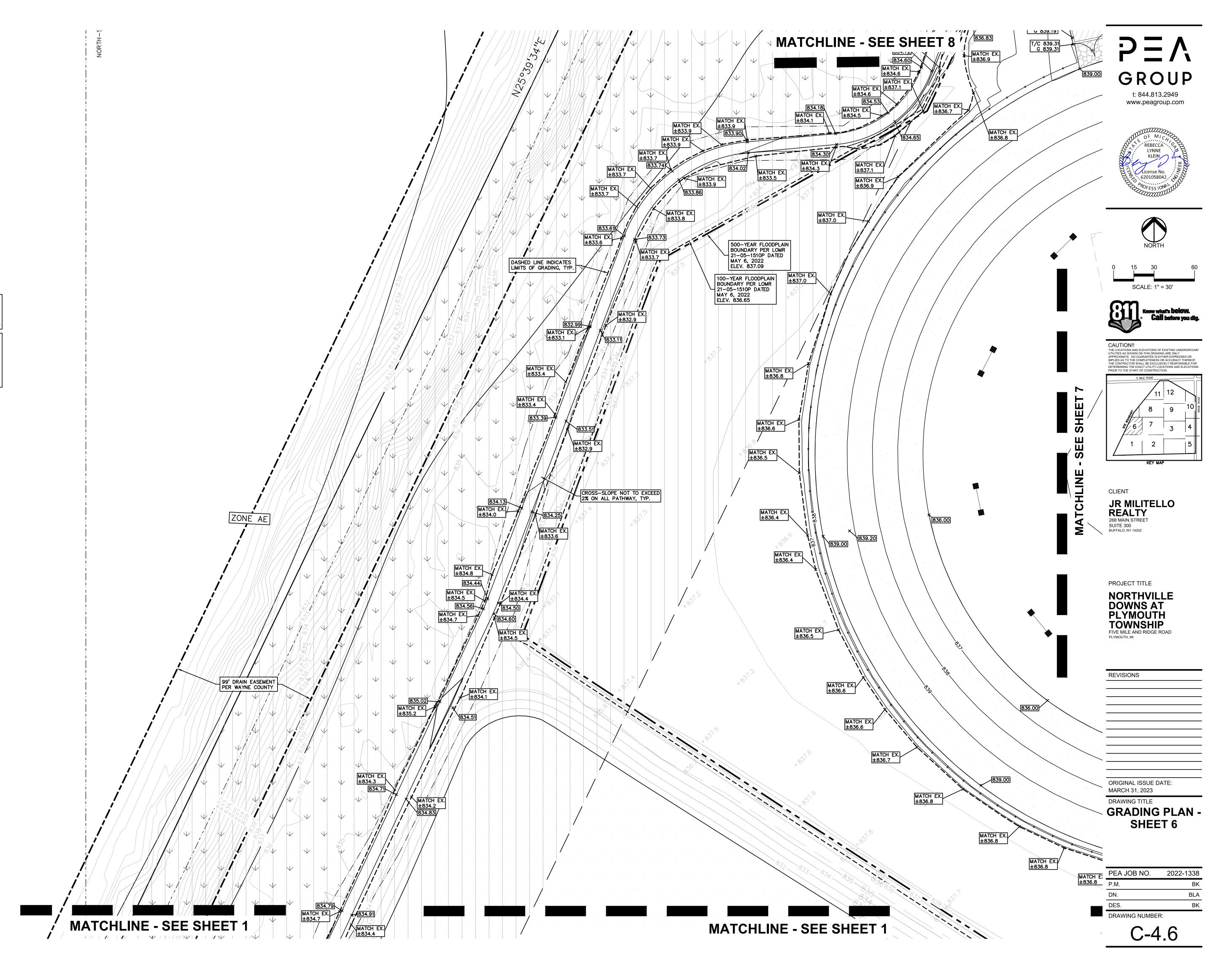
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#### EARTHWORK BALANCING NOTE:

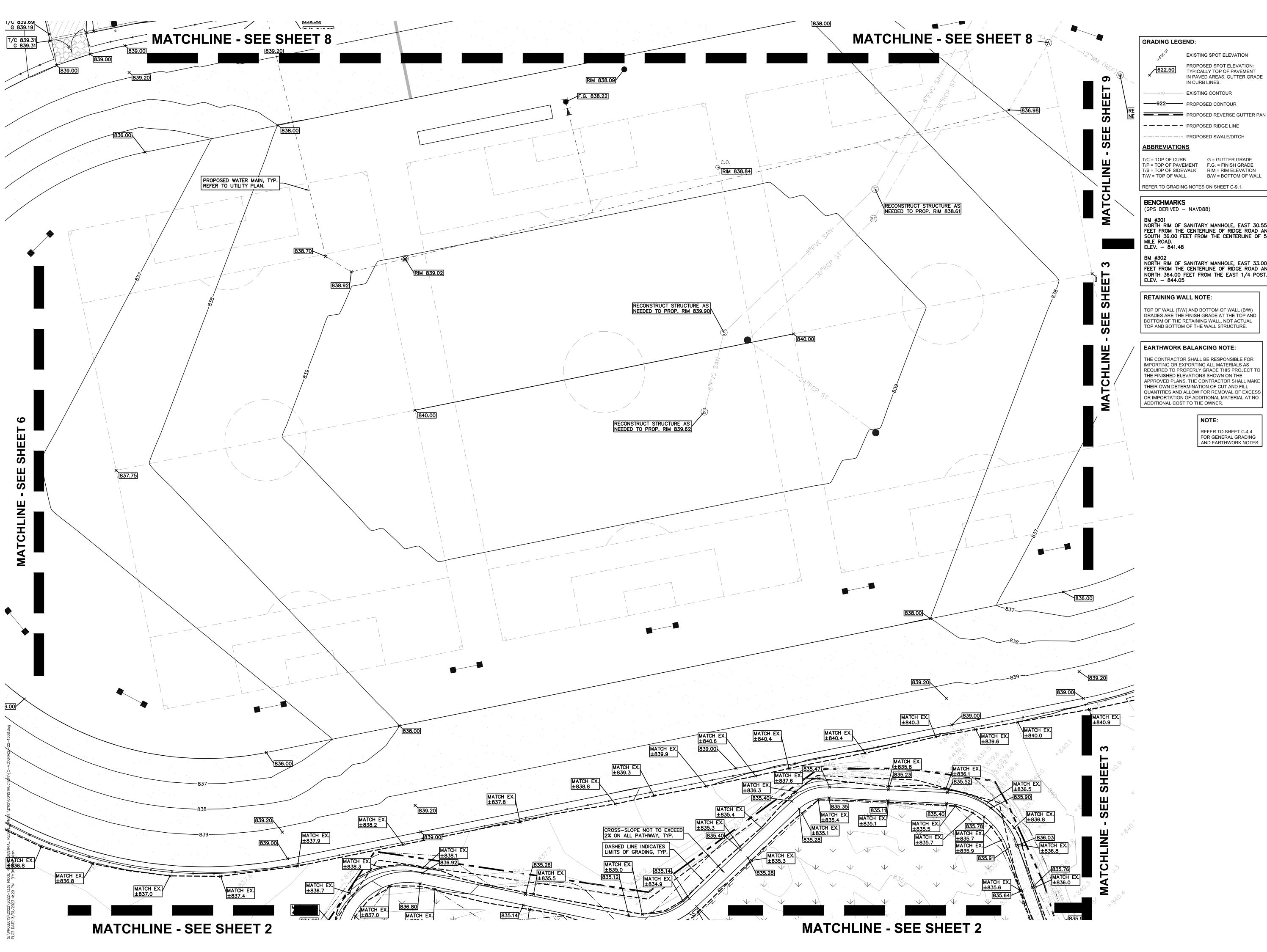
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#### NOTE

REFER TO SHEET C-4.4 FOR GENERAL GRADING AND EARTHWORK NOTES.



OT DATE: 3/31/2023 4: 29 PM BY: Brittany Allen



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BM #301
NORTH RIM OF SANITARY MANHOLE, EAST 30.55
FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5

G = GUTTER GRADE

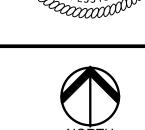
B/W = BOTTOM OF WALL

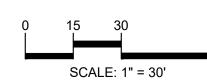
BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND NORTH 364.00 FEET FROM THE EAST 1/4 POST.. ELEV. — 844.05

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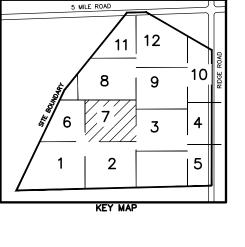
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CLIENT

# JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

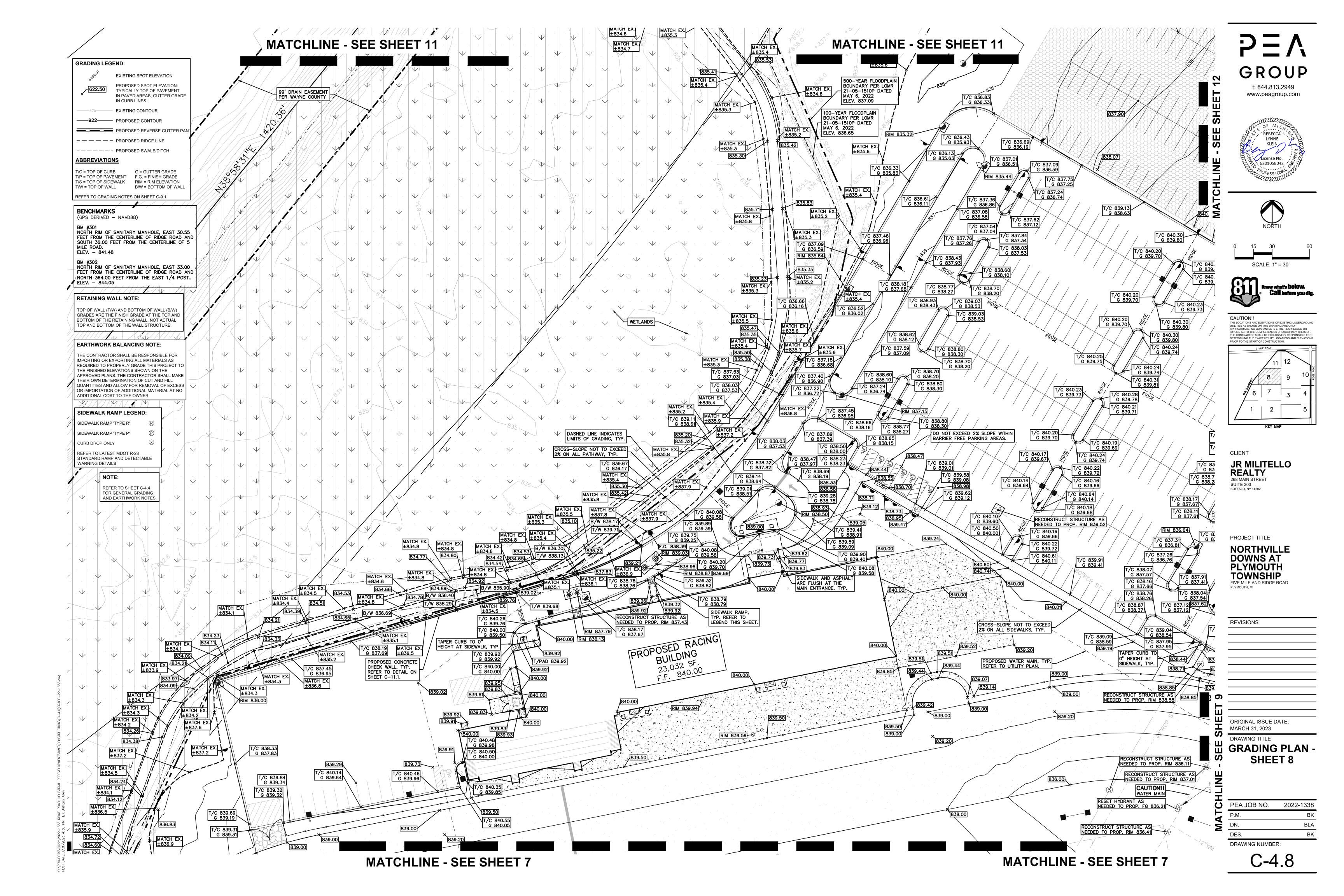
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

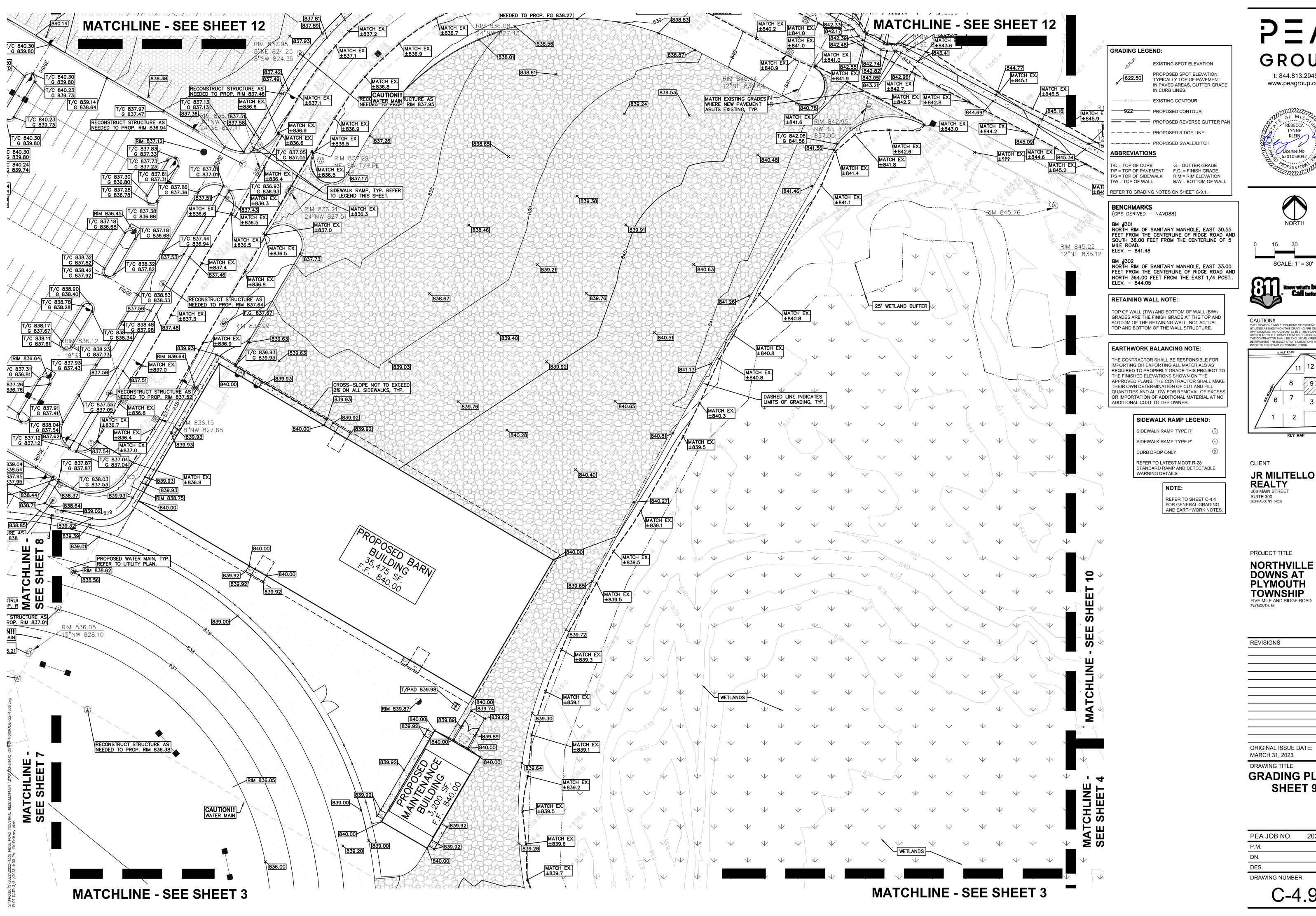
REVISIONS

ORIGINAL ISSUE DATE MARCH 31, 2023 DRAWING TITLE

GRADING PLAN -SHEET 7

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
DRAWING NUMBER	R:





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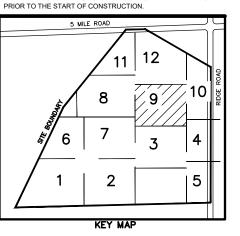








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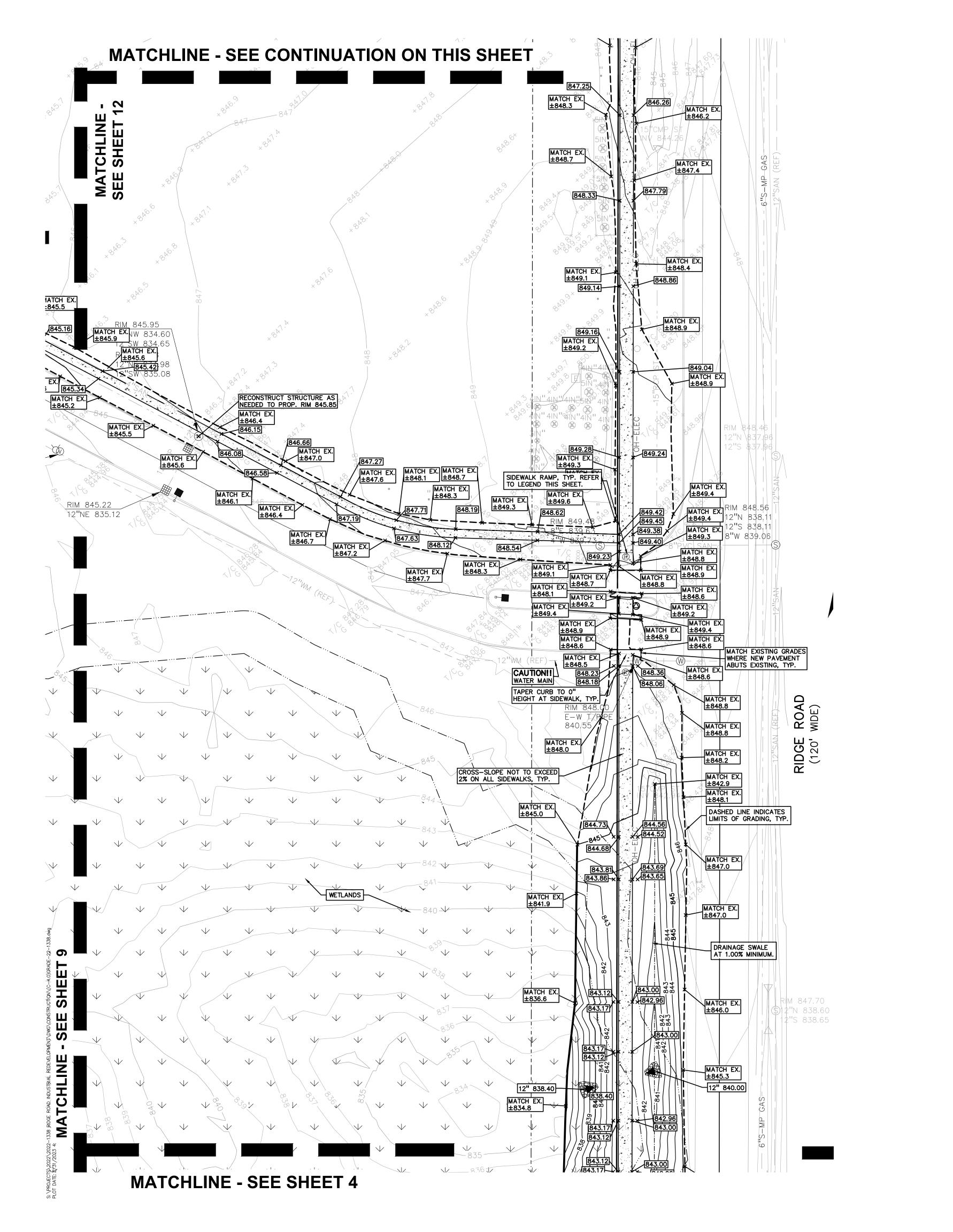
JR MILITELLO

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS
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**GRADING PLAN -**SHEET 9

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	BK
DRAWING NUMBER	:



NOTE: REFER TO SHEET C-4.4

FOR GENERAL GRADING AND EARTHWORK NOTES. SIDEWALK RAMP LEGEND:

SIDEWALK RAMP 'TYPE R' SIDEWALK RAMP 'TYPE P' CURB DROP ONLY

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

# RETAINING WALL NOTE:

TOP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL, NOT ACTUAL TOP AND BOTTOM OF THE WALL STRUCTURE.

#### **EARTHWORK BALANCING NOTE:**

MATCH EX. ±845.8

MATCH EX. ±847.2

MATCH EX. ±847.1

MATCH EX. ±847.3

MATCH EX. 1848.3

846.71

DASHED LINE INDICATES LIMITS OF GRADING, TYP.

CROSS-SLOPE NOT TO EXCEED 2% ON ALL SIDEWALKS, TYP.

CROSS-SLOPE NOT TO EXCEED 2% ON ALL SIDEWALKS, TYP.

**MATCHLINE - SEE** 

**CONTINUATION ON THIS SHEET** 

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT 1 THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKI THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

GRADING LEGEND:

EXISTING SPOT ELEVATION PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES. EXISTING CONTOUR

——922—— PROPOSED CONTOUR PROPOSED REVERSE GUTTER PAN - - - - PROPOSED RIDGE LINE

----- PROPOSED SWALE/DITCH

**ABBREVIATIONS** T/C = TOP OF CURB G = GUTTER GRADE T/P = TOP OF PAVEMENT F.G. = FINISH GRADE

T/S = TOP OF SIDEWALK RIM = RIM ELEVATION T/W = TOP OF WALL REFER TO GRADING NOTES ON SHEET C-9.1.

#### BENCHMARKS (GPS DERIVED - NAVD88)

ROAD WIDE)

RIDGE (120'

BM #301
NORTH RIM OF SANITARY MANHOLE, EAST 30.55
FEET FROM THE CENTERLINE OF RIDGE ROAD AND SOUTH 36.00 FEET FROM THE CENTERLINE OF 5

ELEV. - 841.48 BM #302 NORTH RIM OF SANITARY MANHOLE, EAST 33.00 FEET FROM THE CENTERLINE OF RIDGE ROAD AND

NORTH 364.00 FEET FROM THE EAST 1/4 POST... ELEV. - 844.05

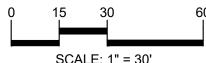


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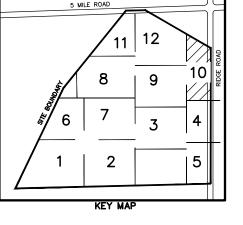
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CLIENT

# JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

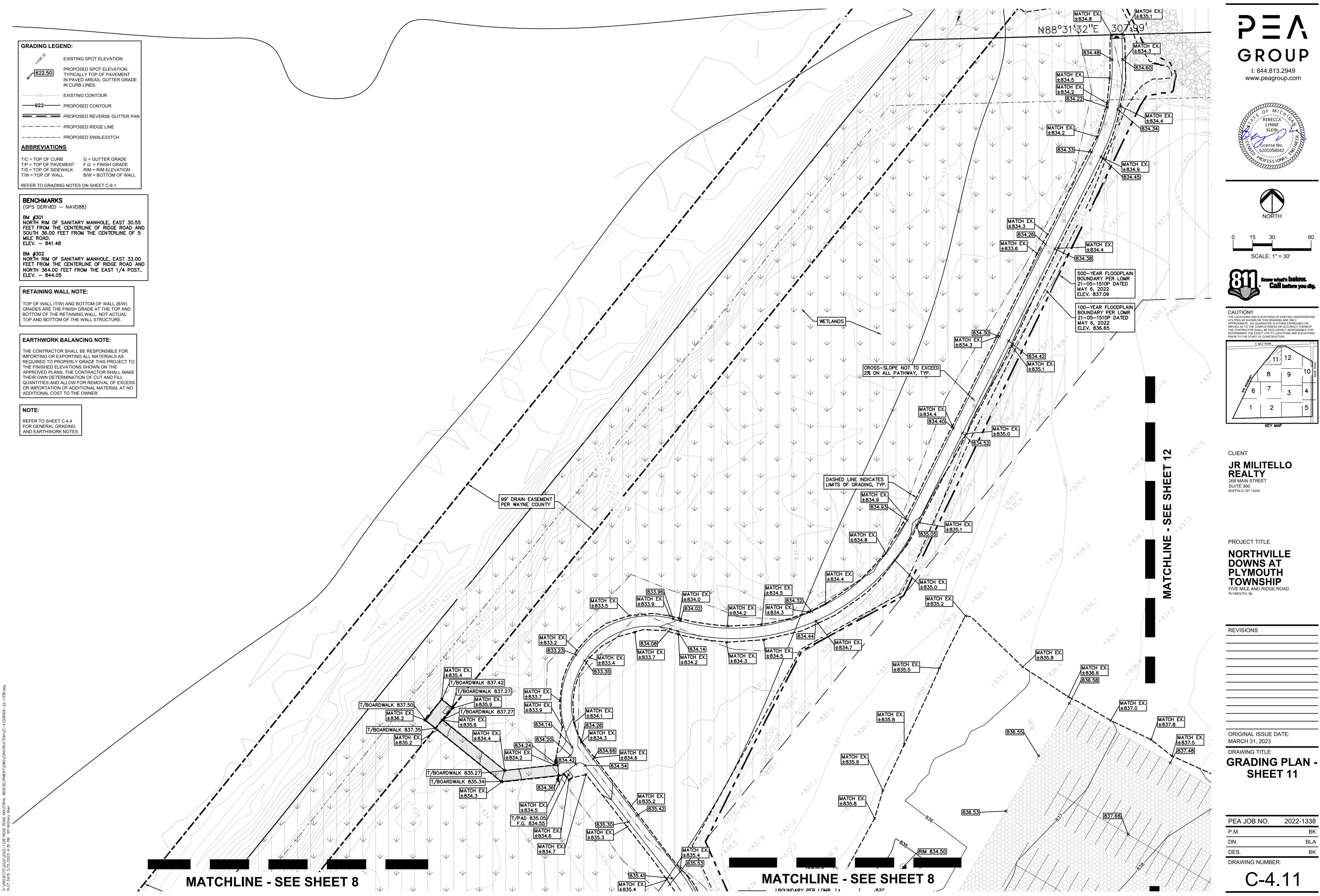
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS	

ORIGINAL ISSUE DATE MARCH 31, 2023 DRAWING TITLE

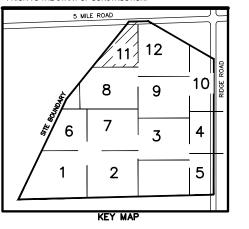
**GRADING PLAN -**SHEET 10

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	BK
DRAWING NUMBER	<del></del> . R:



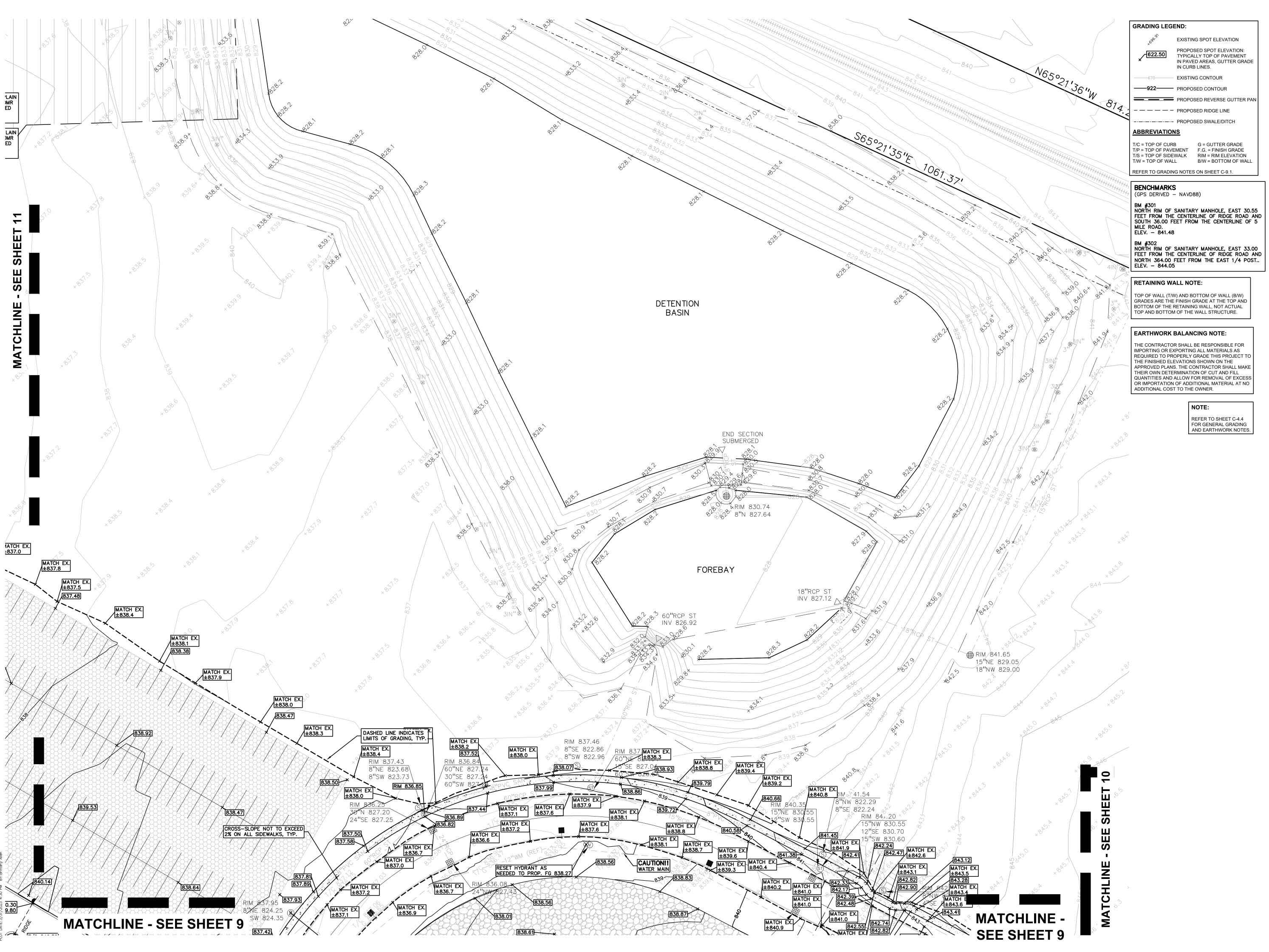






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2022-1338



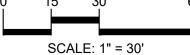
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TOP OF WALL (T/W) AND BOTTOM OF WALL (B/W) GRADES ARE THE FINISH GRADE AT THE TOP AND BOTTOM OF THE RETAINING WALL, NOT ACTUAL

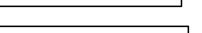
EXISTING SPOT ELEVATION PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE

G = GUTTER GRADE

B/W = BOTTOM OF WALL

IN CURB LINES.

EXISTING CONTOUR



THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINISHED ELEVATIONS SHOWN ON THE

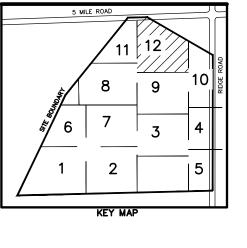
> NOTE: REFER TO SHEET C-4.4 FOR GENERAL GRADING AND EARTHWORK NOTES.



IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.



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CLIENT

# JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

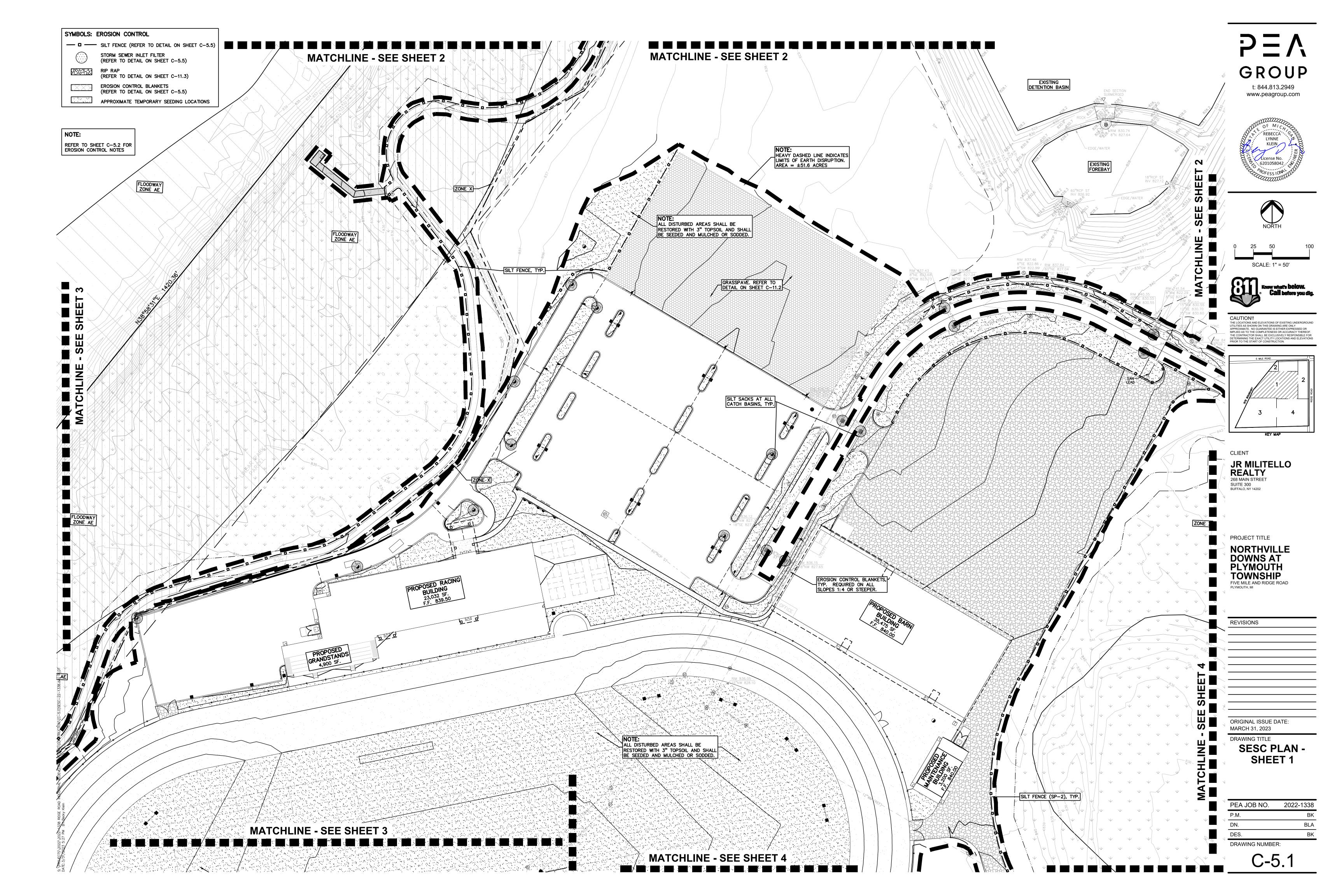
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

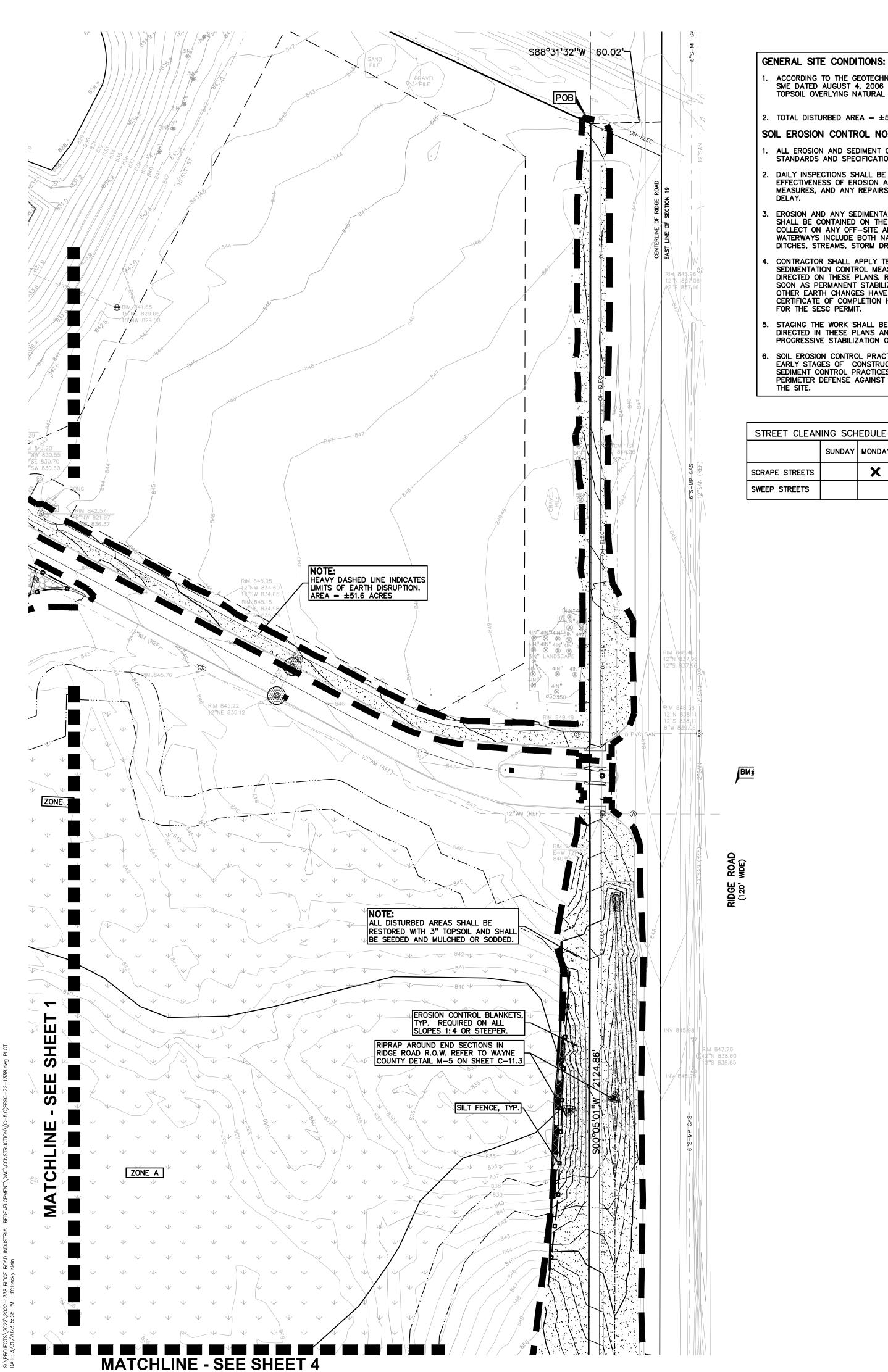
REVISIONS	

ORIGINAL ISSUE DATE MARCH 31, 2023

DRAWING TITLE GRADING PLAN -SHEET 12

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER	 ₹:





#### GENERAL SITE CONDITIONS:

- ACCORDING TO THE GEOTECHNICAL INVESTIGATION PERFORMED BY SME DATED AUGUST 4, 2006 THE SITE CONSISTS OF SURFICAL TOPSOIL OVERLYING NATURAL SANDS AND CLAYS.
- 2. TOTAL DISTURBED AREA =  $\pm 51.6$  ACRES

#### SOIL EROSION CONTROL NOTES:

- ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO STANDARDS AND SPECIFICATIONS OF WAYNE COUNTY.
- DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND ANY REPAIRS SHALL BE PERFORMED WITHOUT
- EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGES HAVE BEEN ACCOMPLISHED AND A CERTIFICATE OF COMPLETION HAS BEEN ISSUED BY THE COUNTY FOR THE SESC PERMIT.
- STAGING THE WORK SHALL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLANS AND AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED EARTH.
- . SOIL EROSION CONTROL PRACTICES SHALL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES SHALL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF

 $\times$ 

SUNDAY MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY

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X X

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### SEQUENCE OF CONSTRUCTION:

#### START END 120 INSTALL CRUSHED CONCRETE ACCESS APPROACH AT SITE ROAD APPROACH.

- 120 INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES, SILT FENCES, INLET PROTECTION, ETC. AS NECESSARY.
- 180 MAINTAIN A 25' BUFFER OF VEGETATION AROUND PERIMETER OF SITE WHERE POSSIBLE.
- 20 REMOVE ALL VEGETATION, TREES AND BRUSH FROM THE PROPOSED CONSTRUCTION AREA UNLESS MARKED TO REMAIN. STRIP
- AND STOCKPILE TOPSOIL AS REQUIRED RESTORATION. ALL STOCKPILES MUST BE GRADED AND SEEDED.
- 19 REMOVE ALL PAVEMENT, CURB, UTILITIES, ETC. AS REQUIRED TO INSTALL THE PROPOSED WORK AS SHOWN ON THE TOPOGRAPHIC SURVEY AND DEMOLITION PLAN.
- 19 DISPOSE OF ALL EXCESS/UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO ON-SITE BURN OR BURY PITS ALLOWED.
- 40 ROUGH GRADE SITE. SEED AND MULCH BLANKETS MUST BE INSTALLED AS SHOWN WITHIN 5 DAYS OF FINAL GRADE. REPAIR AND/OR RE-INSTALL ANY TEMPORARY SOIL EROSION CONTROL MEASURES THAT WERE DAMAGED DURING GRADING
- 40 80 INSTALL SITE UTILITIES (STORM SEWER, SANITARY SEWER, WATER MAIN ETC.). INSTALL INLET PROTECTION AT ALL PROPOSED
- 80 TEMPORARY SEEDING MUST BE PROVIDED IN AREAS NOT TO BE WORKED ON FOR 15 DAYS OR LONGER.
- 40 110 BEGIN CONSTRUCTION OF BUILDING. 65 90 FINE GRADE SITE AND PREPARE FOR SITE PAVING OPERATIONS.
- 110 INSTALL ALL PAVEMENT, SIDEWALKS, CURBING AS PROPOSED. IF PERMANENT LANDSCAPING IS NOT TO BE INSTALLED SOON AFTER PAVING IS COMPLETE, ALL AREAS WITHIN 20 FEET OF BACK OF CURB MUST BE TEMPORARILY SEEDED. REPAIR INLET PROTECTION, SILT FENCE AND ANY OTHER DAMAGED SOIL EROSION CONTROL MEASURES AS NECESSARY.
- 120 153 FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND INSTALL ALL PERMANENT LANDSCAPING IN ALL DISTURBED AREAS NOT BUILT.
- 152 180 CLEAN PAVEMENT AND REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS
- 180 REMOVE SEDIMENTATION CONTROLS ONCE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED.

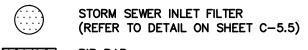
### SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENTATION CONTROL DEVICES ONCE EACH WEEK AND/OR WITHIN 24 HOURS OF A RAINFALL EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. THE FOLLOWING STEPS SHALL BE IMPLEMENTED IF ANY DAMAGE HAS OCCURRED.

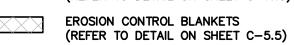
- ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.
- ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED DAILY BY SCRAPING. STREET SWEEPING IS
- . SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
- . INLET FILTER MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE REMOVAL OF SILT SHOULD BE WITH THE USE OF A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTERS CAN NOT BE CLEANED OR ARE DAMAGED, THEN THE FABRIC MUST BE REPLACED.
- A WATER TRUCK SHALL BE AVAILABLE TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.

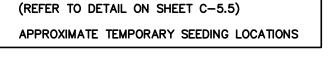
#### SYMBOLS: EROSION CONTROL

— D — SILT FENCE (REFER TO DETAIL ON SHEET C-5.5)



(REFER TO DETAIL ON SHEET C-11.3)



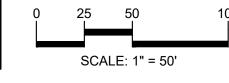


#### FINAL INSPECTION AND CERTIFICATE OF COMPLETION REQUIREMENTS:

- ALL ITEMS ON APPROVED SESC PLAN AND PERMIT MUST BE COMPLETED.
- ALL DISTURBED EARTH MUST BE PERMANENTLY STABILIZED WITH VEGETATION OR HARD SURFACE.
- ACCUMULATED SEDIMENT MUST BE REMOVED FROM THE ENTIRE STORM SEWER SYSTEM.
- ACCUMULATED SEDIMENT MUST BE REMOVED FROM THE SEDIMENTATION BASIN.
- ALL TEMPORARY SESC DEVICES MAY BE REMOVED AFTER CERTIFICATE OF COMPLETION.

#### **EROSION CONTROL QUANTITIES:**

SILT FENCE	8,829 LF
INLET FILTERS	17 EA.
TEMPORARY CONSTRUCTION ACCESS DRIVE	3 EA.
EROSION CONTROL BLANKETS	1,437 S.Y.
TEMPORARY SEEDING	67,671 S.Y.



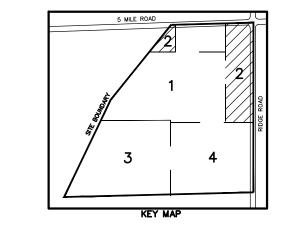
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CLIENT

# **JR MILITELLO** REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

MARCH 31, 2023 DRAWING TITLE **SESC PLAN -**SHEET 2

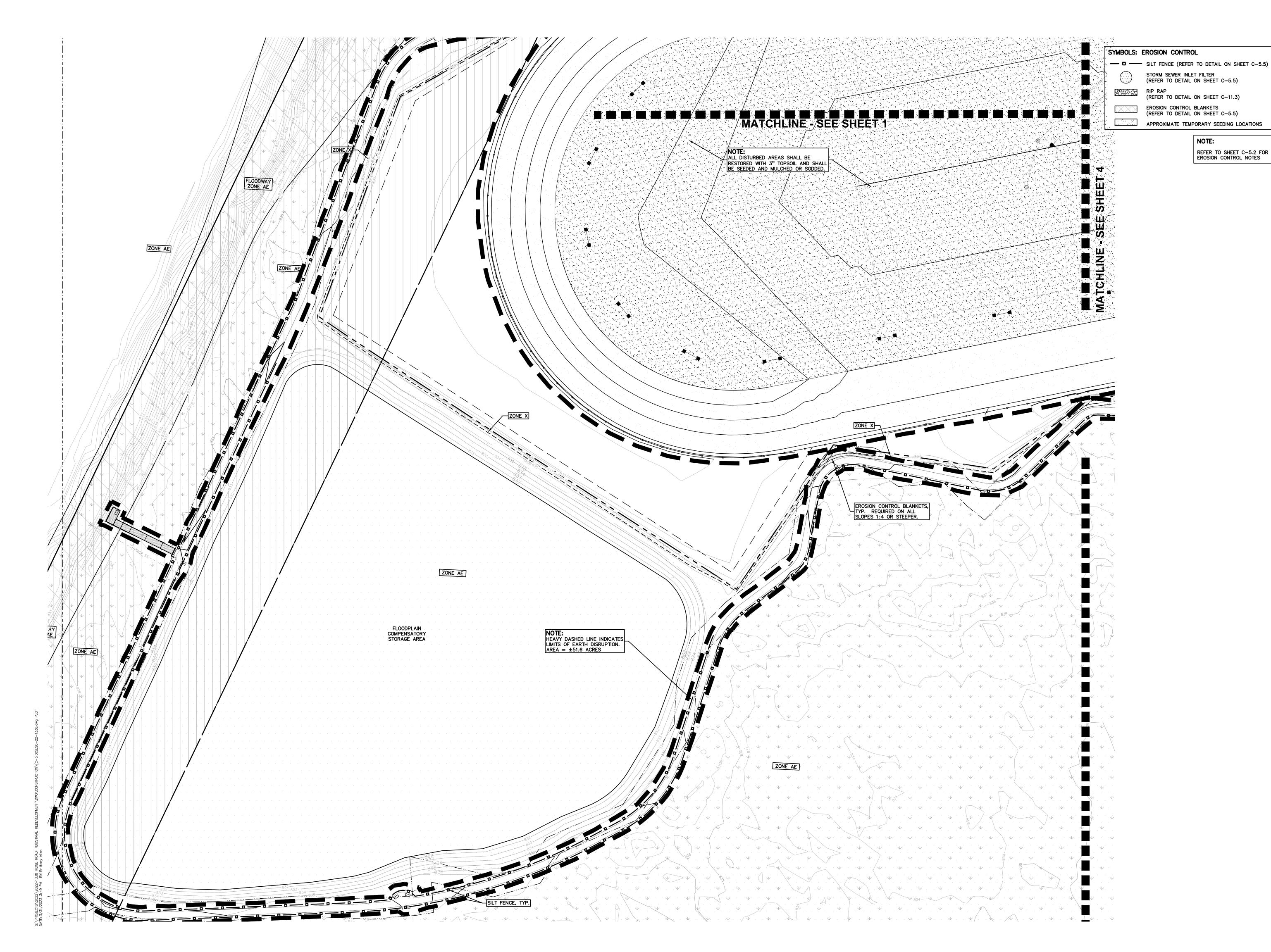
ORIGINAL ISSUE DATE

PEA JOB NO. 2022-1338 DRAWING NUMBER:

C-5.2

ZONÉ AE ZONE AE FLOODWAY ZONE AE NOTE:
HEAVY DASHED LINE INDICATES
LIMITS OF EARTH DISRUPTION.
AREA = ±51.6 ACRES

**MATCHLINE - SEE SHEET 1** 

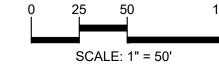


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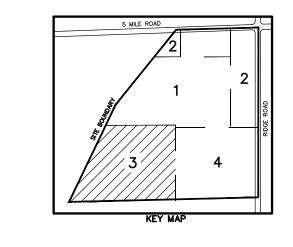








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PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

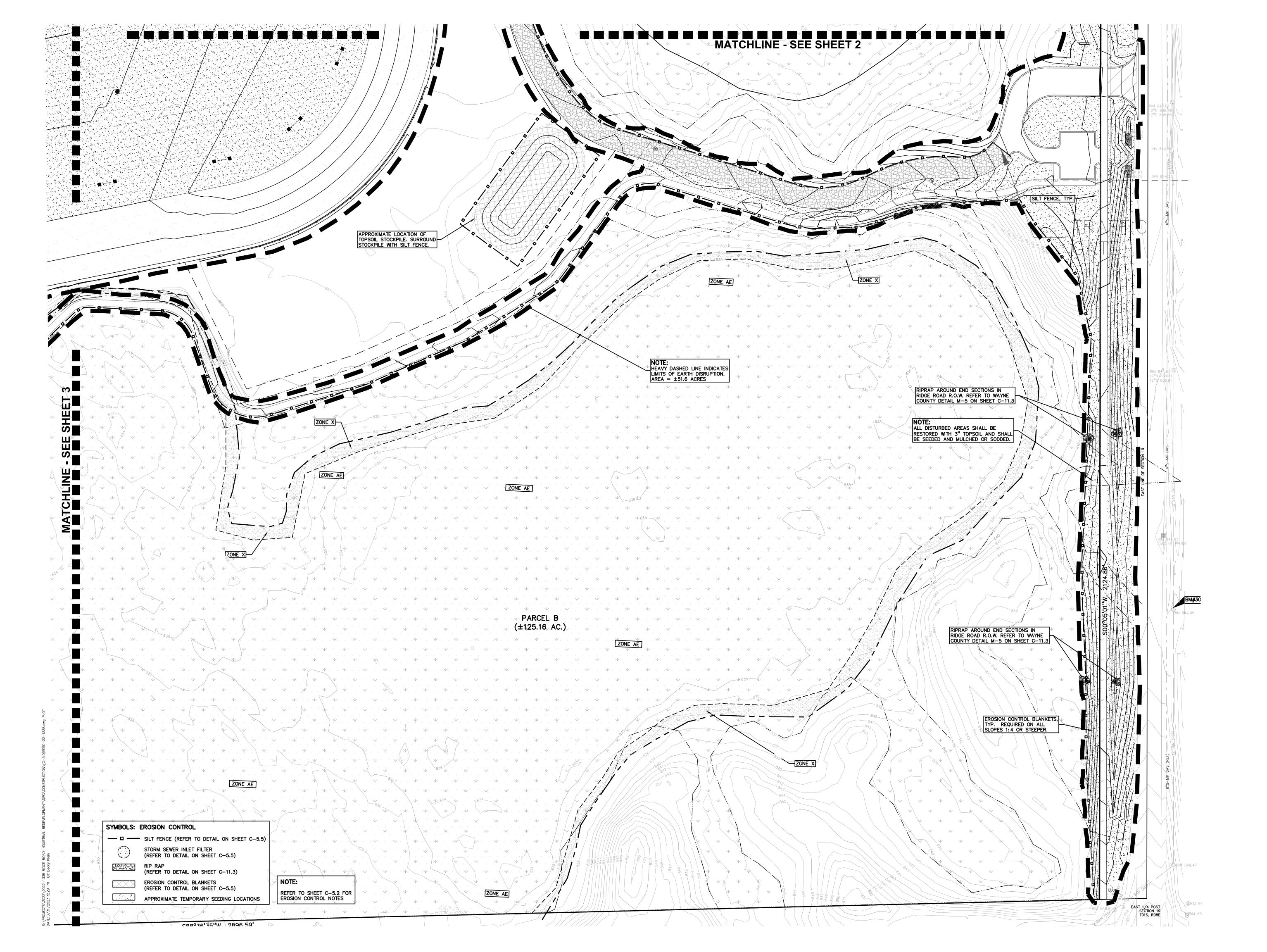
REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023

SESC PLAN -SHEET 3

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	BK
DRAWING NUMBER:	

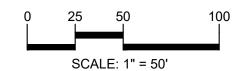
C-5.3







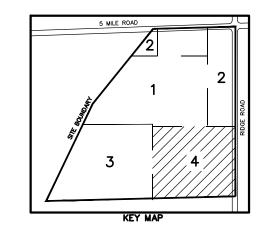






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JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

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DRAWING TITLE

SESC PLAN SHEET 4

ORIGINAL ISSUE DATE:

PEA JOB NO. 2022-1338

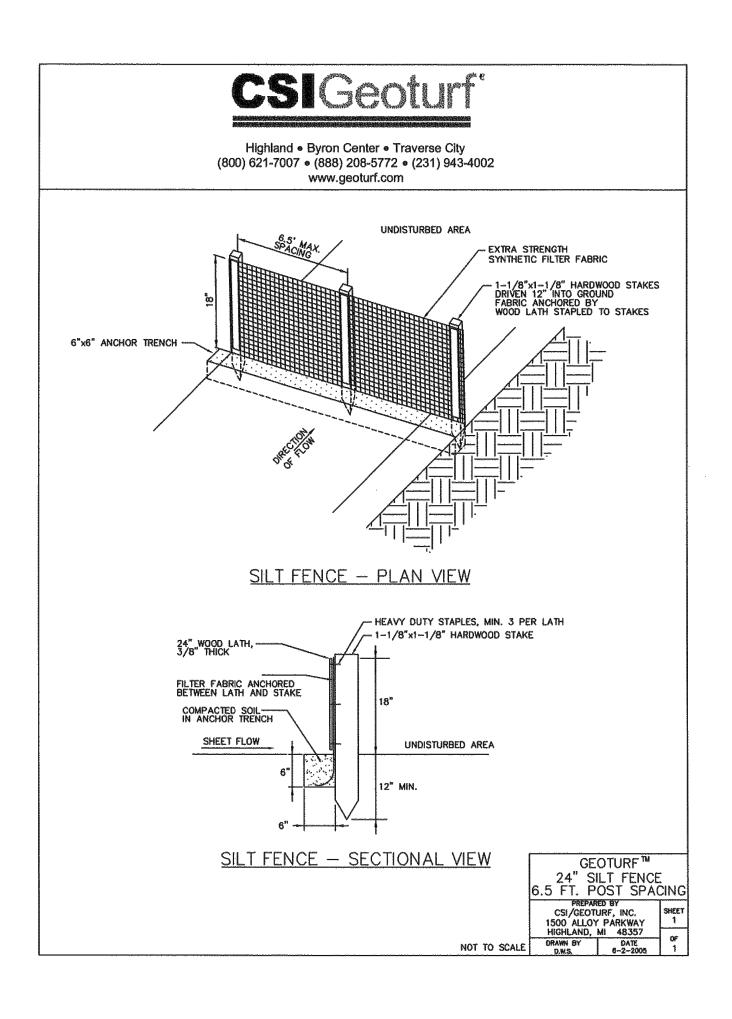
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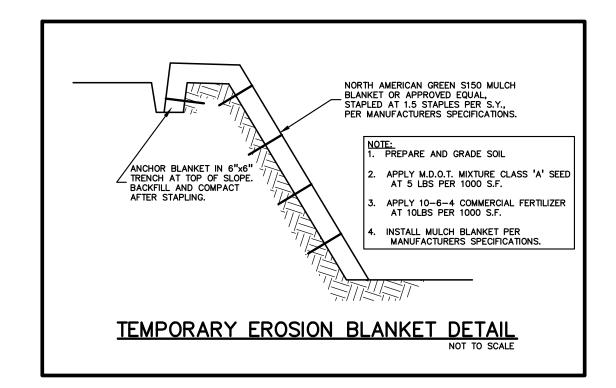
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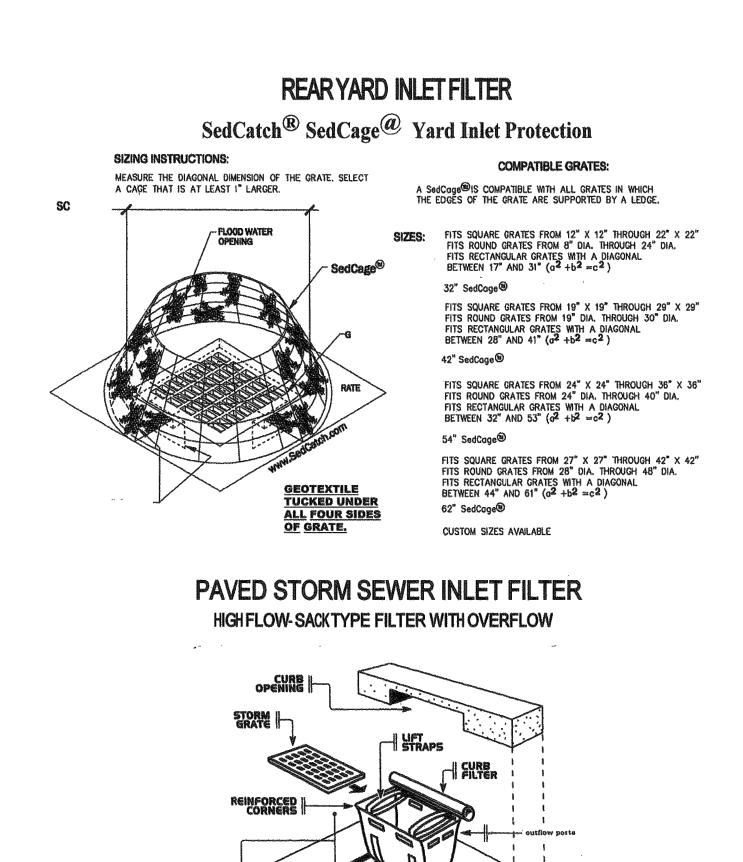
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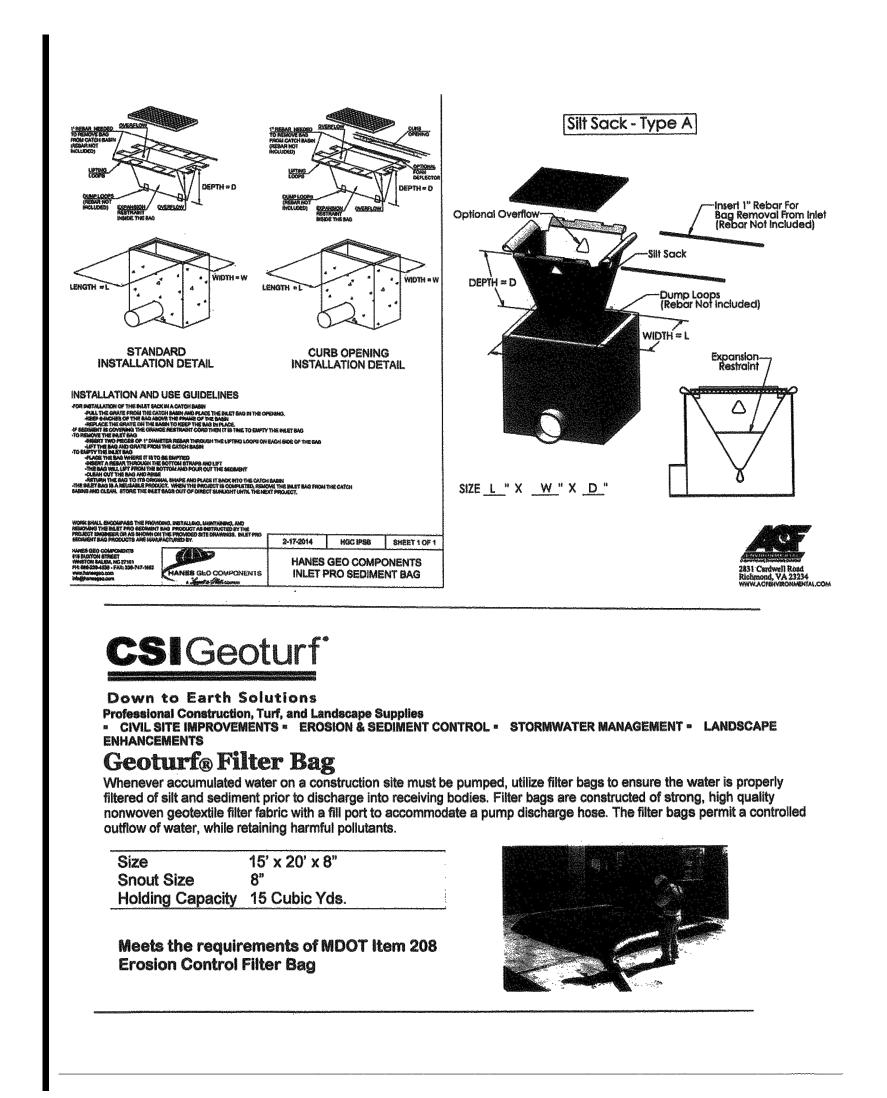
C-5.4







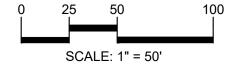
Page 6



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JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

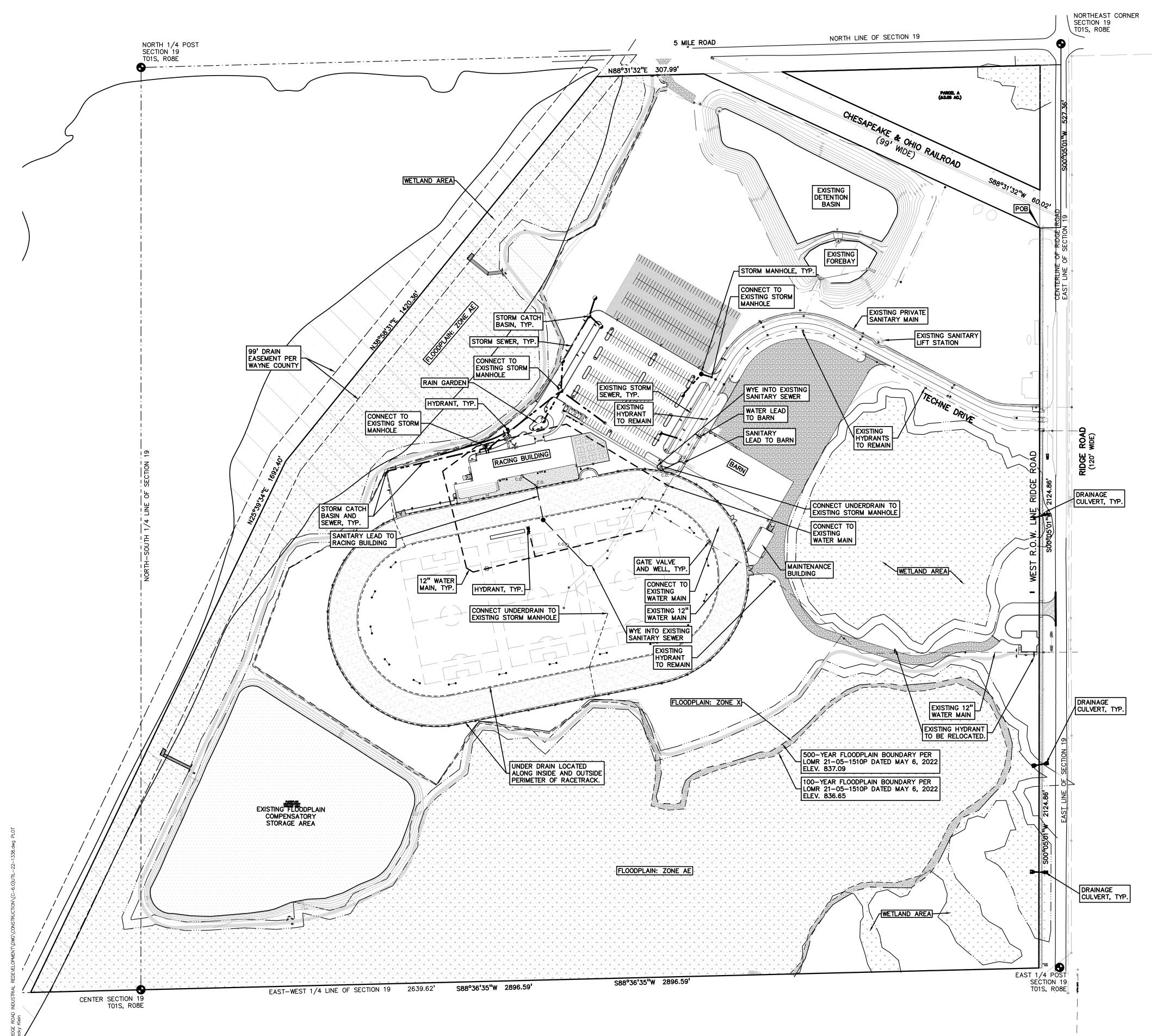
ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE

EROSION CONTROL DETAILS

PEA JOB NO.	2022-133
P.M.	В
DN.	BL
DES.	В
DRAWING NUMBER:	

C-5.5



#### **GENERAL UTILITY NOTES:**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP
- ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
- WHERE EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER TO CENTER, AROUND PERIPHERY OF OPENING TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
- THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UTILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THI DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. CONTRACTOR SHALL FIELD VERIFY
- THE CONTRACTOR SHALL COORDINATE TO ENSURE ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED FOR THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, IRRIGATION, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT AND LANDSCAPING.
- PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL INSPECT ALL EXISTING PUBLIC STORM SEWER, SANITARY SEWER AND WATER MAIN STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION AND WITH THE GOVERNING AGENCY INSPECTOR PRIOR TO ESTABLISHING FINAL GRADE. NOTIFY THE ENGINEER. OWNER/DEVELOPER. AND GOVERNING AGENCY IF STRUCTURE IS DEEMED TO BE STRUCTURALLY UNSOUND AND/OR IN NEED OF REPAIR.

#### STORM SEWER NOTES:

- ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-76) CLASS IV WITH MODIFIED TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE (ASTM C-443).
- ALL STORM SEWER LEADS SHALL BE CONSTRUCTED AT 1.00%
- ALL STORM SEWER 10" OR LESS AND/OR LEADS SHALL BE SDR
- JOINTS FOR P.V.C. PIPE SHALL BE ELASTOMERIC (RUBBER GASKET) AS SPECIFIED IN A.S.T.M. DESIGNATION D-3212.

#### **WATER MAIN NOTES:**

- ALL WATER MAIN WITHIN WAYNE COUNTY R.O.W. SHALL BE INSTALLED WITH A MINIMUM COVER OF 7.0' BELOW FINISH GRADE. 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 TWENTY TWO AND A HALF (22.5°) DEGREE BENDS, PROPERLY ANCHORED.
- ALL WATER MAIN NOT LOCATED WITHIN WAYNE COUNTY R.O.W. SHALL BE INSTALLED WITH A MINIMUM COVER OF 6.0' BELOW FINISH GRADE. 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 TWENTY TWO AND A HALF (22.5°) DEGREE BENDS, PROPERLY ANCHORED.
- ALL TEES, BENDS, CONNECTIONS, ETC. ARE CONSIDERED INCIDENTAL TO THE JOB.
- PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATER MAINS UNTIL REQUIRED TESTING IS SATISFACTORILY COMPLETED.
- MAINTAIN 10' HORIZONTAL CLEARANCE BETWEEN OUTER EDGE OF WATERMAIN AND ANY SANITARY/STORM SEWER OR STRUCTURE.
- NO PHYSICAL CONNECTION TO THE EXISTING WATER MAIN CAN BE MADE UNTIL ALL NEW WATER MAIN PASSES PRESSURE AND BACTERIOLOGICAL TESTS TO THE SATISFACTION OF THE
- ALL WATER MAIN AND FITTINGS (3" DIAMETER AND LARGER) SHALL BE DUCTILE IRON, CLASS 54.
- WATER MAIN SERVICE LEADS SHALL BE TYPE 'K' ANNEALED SEAMLESS COPPER WITH FLARED FITTINGS, UNLESS OTHERWISE
- TOWNSHIP STANDARDS.
- . ALL NECESSARY FITTINGS, THRUST BLOCKS, RESTRAINING GLANDS, BLOW OFFS, ETC. FOR WATER MAIN ARE CONSIDERED INCIDENTAL TO THIS PROJECT. THE CONTRACTOR SHALL INSTALL THESE ITEMS AS NECESSARY AND AS REQUIRED BY THE

## SANITARY SEWER NOTES:

- DOWNSPOUTS, WEEP TILE, FOOTING DRAINS OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER.
- ALL SANITARY SEWER 8" OR LARGER SHALL BE P.V.C. TRUSS PIPE (ASTM D2680) AND FITTINGS, WITH ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
- (PVC) SDR 23.5 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
- SANITARY LEADS SHALL BE PROVIDED WITH CLEANOUTS EVERY 100 FEET AND AT EVERY BEND AS SHOWN. ALL CLEANOUTS TO BE PROVIDED WITH E.J.I.W. #1565 BOX OR EQUAL.

#### UTILITY LEGEND:

- DH-ELEC-VV-O- EX. OH. ELEC, POLE & GUY WIRE
- - UG-ELEC-E-EEE EX. U.G. ELEC, MANHOLE, METER & HANDHOLE - - --- - EX. GAS LINE
  - © GAS EX. GAS VALVE & GAS LINE MARKER EX. WATER MAIN
  - ∀ -○- W EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE EX. WATER VALVE BOX & SHUTOFF EX. SANITARY SEWER
  - EX. SANITARY CLEANOUT & MANHOLE EX. COMBINED SEWER MANHOLE EX. STORM SEWER
- EX. CLEANOUT & MANHOLE EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN EX. YARD DRAIN & ROOF DRAIN EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN PROPOSED HYDRANT AND GATE VALVE PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE PROPOSED SANITARY SEWER PROPOSED SANITARY CLEANOUT & MANHOLE
- PREMIUM TRENCH BACKFILL NOTE: ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF

PAVEMENT) SHALL HAVE M.D.O.T. CLASS ILGRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

PROPOSED CATCH BASIN, INLET & YARD DRAIN

○ C.O. ■ PROPOSED STORM SEWER CLEANOUT & MANHOLE

## CHARTER TOWNSHIP OF PLYMOUTH STORM SEWER FRAM

- AND COVER NOTES
- CATCH BASIN PAVEMENT FRAME: EJ 1040Z
  - COVER: TYPE "M1"
  - CATCH BASIN CURB FRAME: EJ 5080Z COVER: TYPE "M2"
  - CATCH BASIN/INLET YARD
  - COVER: EJ 6508 MANHOLE - SANITARY
  - FRAME: EJ 1040ZPT COVER: 1040APT
  - MANHOLE WATER FRAME: EJ 1040Z COVER: 1040C

#### **PUBLIC UTILITY EASEMENTS:** ALL SANITARY SEWERS 8" AND LARGER IN DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER MAIN SHALL BE LOCATED IN A 12' WIDE EASEMENT.

# WAYNE COUNTY

# **INSPECTION NOTES:**

STORM SEWER QUANTITIES:

6" HDPE UNDERDRAIN WITH SOCK

**SANITARY SEWER QUANTITIES:** 

**WATER MAIN QUANTITIES:** 

2" COPPER 'K' WATER LEAD

12" RCP CL-IV PIPE

15" RCP CL-IV PIPE

24" RCP CL-IV PIPE

36" RCP CL-IV PIPE

12" CMP END SECTION

TAP EXISTING MANHOLE

6" PVC SDR 23.5 PIPE

CLEANOUT AND BOX

4" D.I.W.M. CLASS 54

12" D.I.W.M. CLASS 54

6" D.I.W.M. CLASS 54

2" VALVE AND BOX

4" VALVE AND BOX

6" GATE VALVE AND WELL

HYDRANT ASSEMBLY

12" GATE VALVE AND WELL

RELOCATE EXISTING HYDRANT

VERIFICATION, PRIOR TO BIDDING.

CONTRACTOR TO VERIFY ALL QUANTITIES. ANY

DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEA GROUP FOR

4' DIA. MANHOLE

4' DIA. CATCH BASIN

4' DIA. MANHOLE

12" HDPE PIPE

12" CMP PIPE

THE WAYNE COUNTY PERMIT ENGINEER MUST OBSERVE CONSTRUCTION AND INSTALLATION OF THE SITE STORM WATER MANAGEMENT SYSTEM COMPONENTS (MANUFACTURED TREATMENT SYSTEM, UNDERGROUND DETENTION SYSTEM, OUTLET CONTROL

858-2674 AT LEAST 3 WORKING DAYS

6,062 LF

551 LF

156 L F

100 LF

118 LF

6 EA.

8 EA.

1 EA.

5 EA.

440 LF

5 EA.

1 EA.

38 LF

27 LF 54 LF

2 EA.

1 EA.

1 EA.

3 EA.

1.617 LF

- STRUCTURE, AND OUTLET PIPES). CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY PERMIT OFFICE AT (734)
- PRIOR TO START OF CONSTRUCTION TO SCHEDULE INSPECTION DURING CONSTRUCTION.
- ALL FIRE HYDRANTS SHALL BE EJIW #5BR MODEL #250 PER
- 10. ALL HYDRANTS TO BE A MINIMUM OF 5' FROM BACK OF CURB,
- 2. THE WATER MAIN CONTRACTOR SHALL NOTIFY THE INSPECTION SECTION OF PLYMOUTH TOWNSHIP AT LEAST THREE WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION.

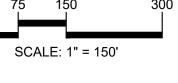
- ALL SANITARY LEADS SHALL BE CONSTRUCTED AT 1.00% MINIMUM SLOPE.
- ALL SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE

t: 844.813.2949 www.peagroup.com













TILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR MPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOI THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

SUITE 300

BUFFALO, NY 14202

# **REALTY** 268 MAIN STREET

PROJECT TITLE

PLYMOUTH, MI

**NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD

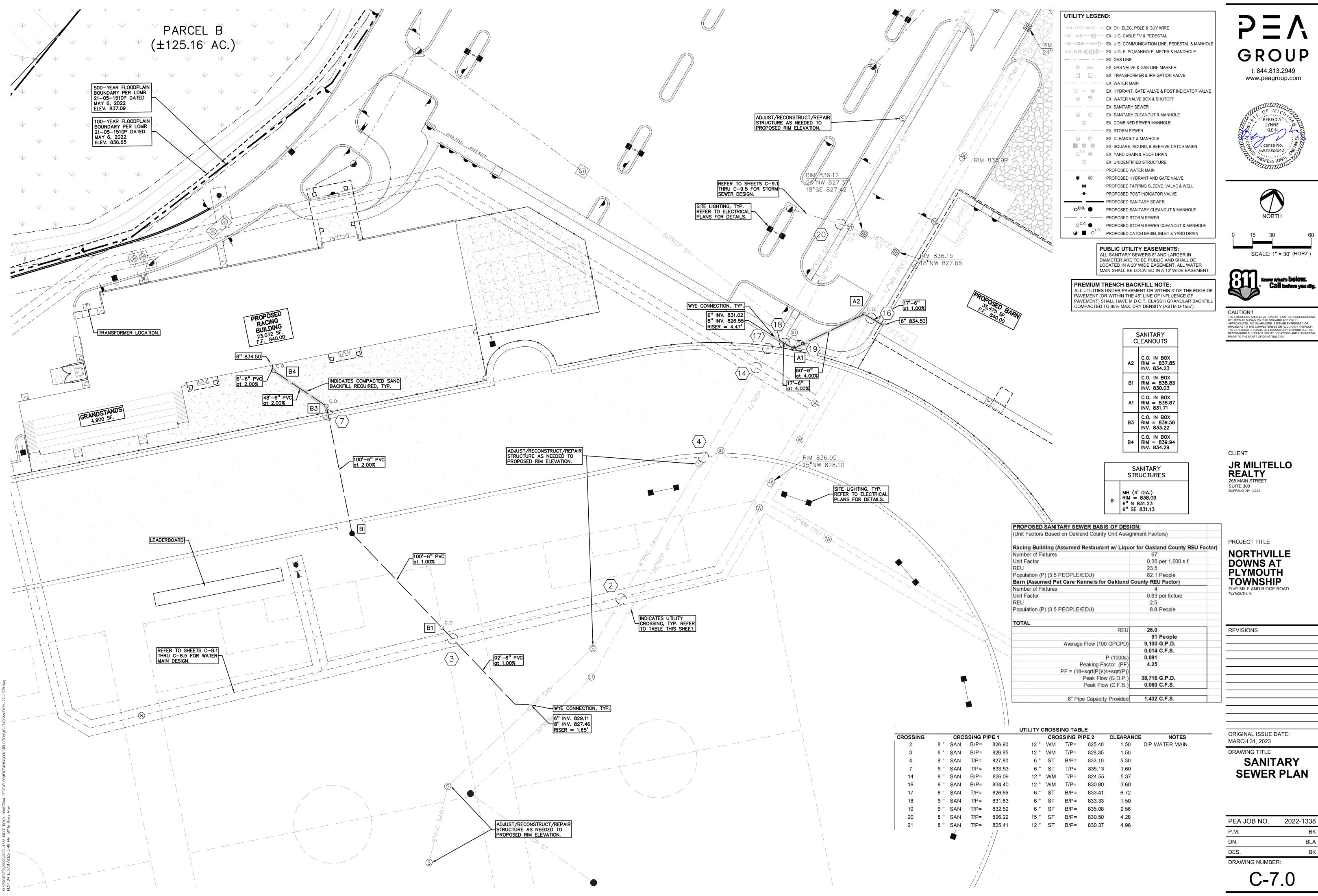
REVISIONS
-

**ORIGINAL ISSUE DATE:** MARCH 31, 2023

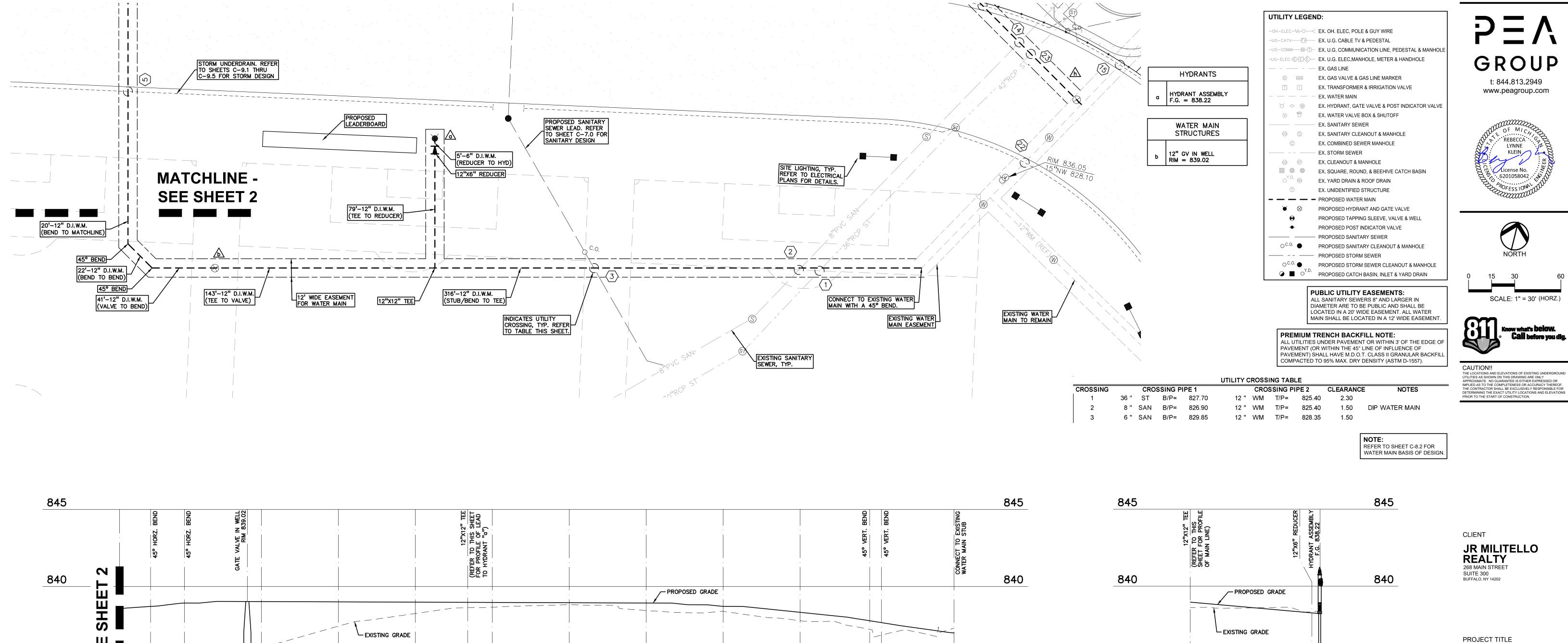
DRAWING TITLE **OVERALL UTILITY PLAN** 

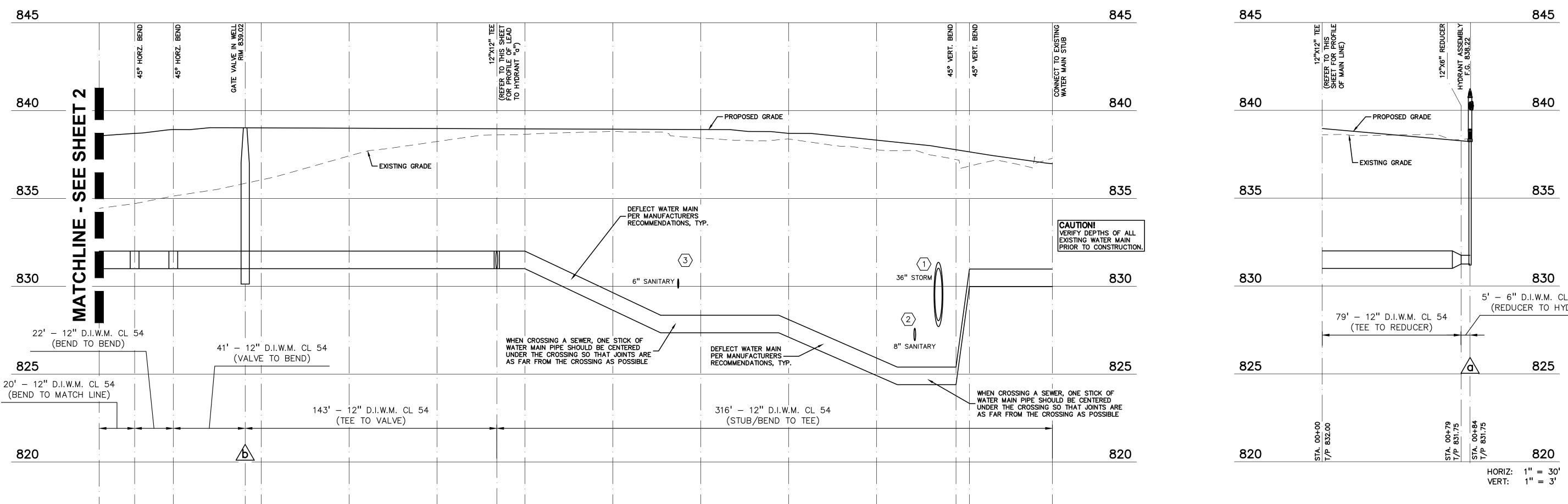
PEA JOB NO. 2022-1338 BLA DES.

DRAWING NUMBER:



PEA JOB NO. 2022-1338 BLA



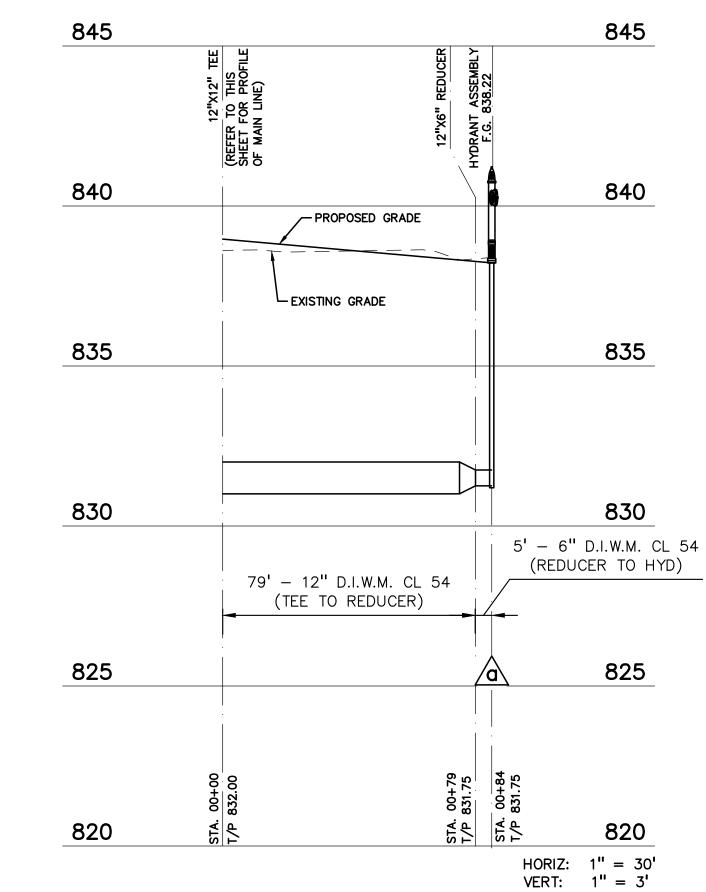


STA.

825.40

815

HORIZ: 1'' = 30'VERT: 1'' = 3'



REVISIONS ORIGINAL ISSUE DATE: MARCH 31, 2023

**NORTHVILLE** 

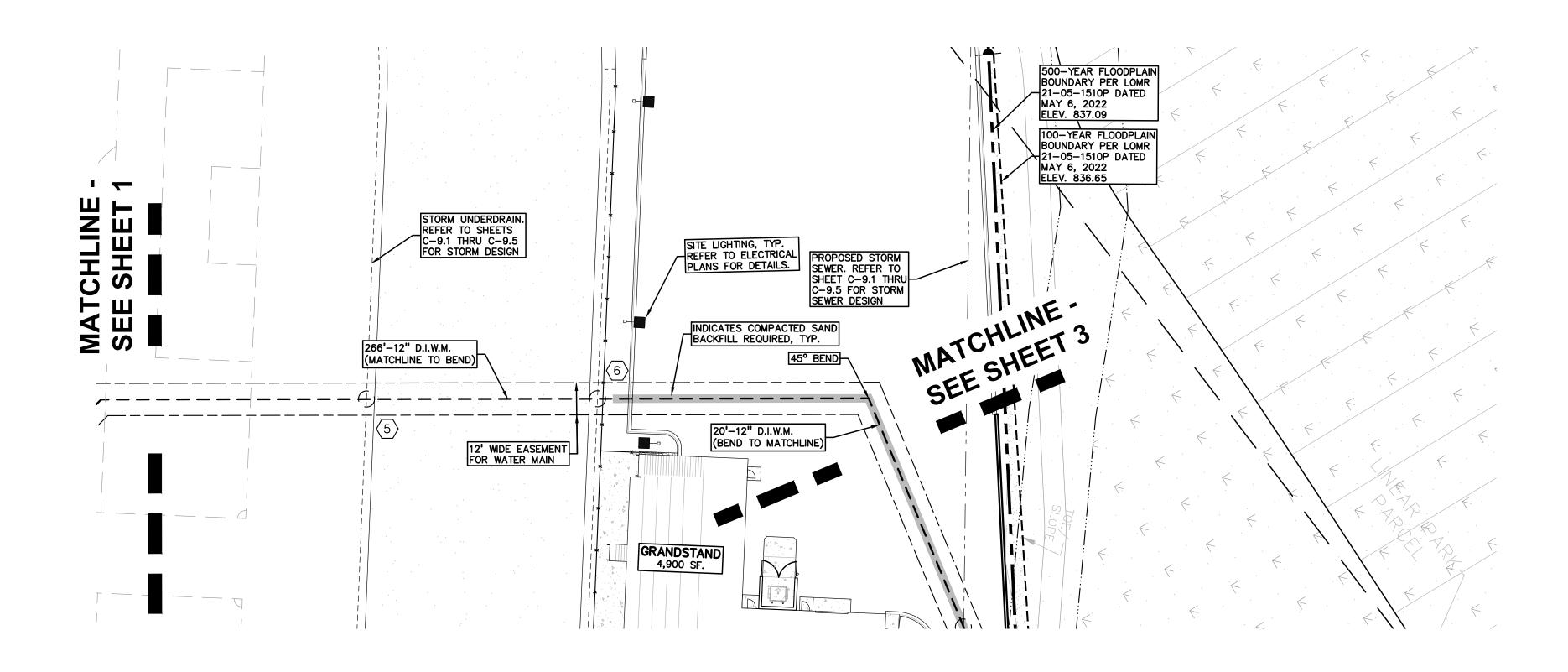
**DOWNS AT** 

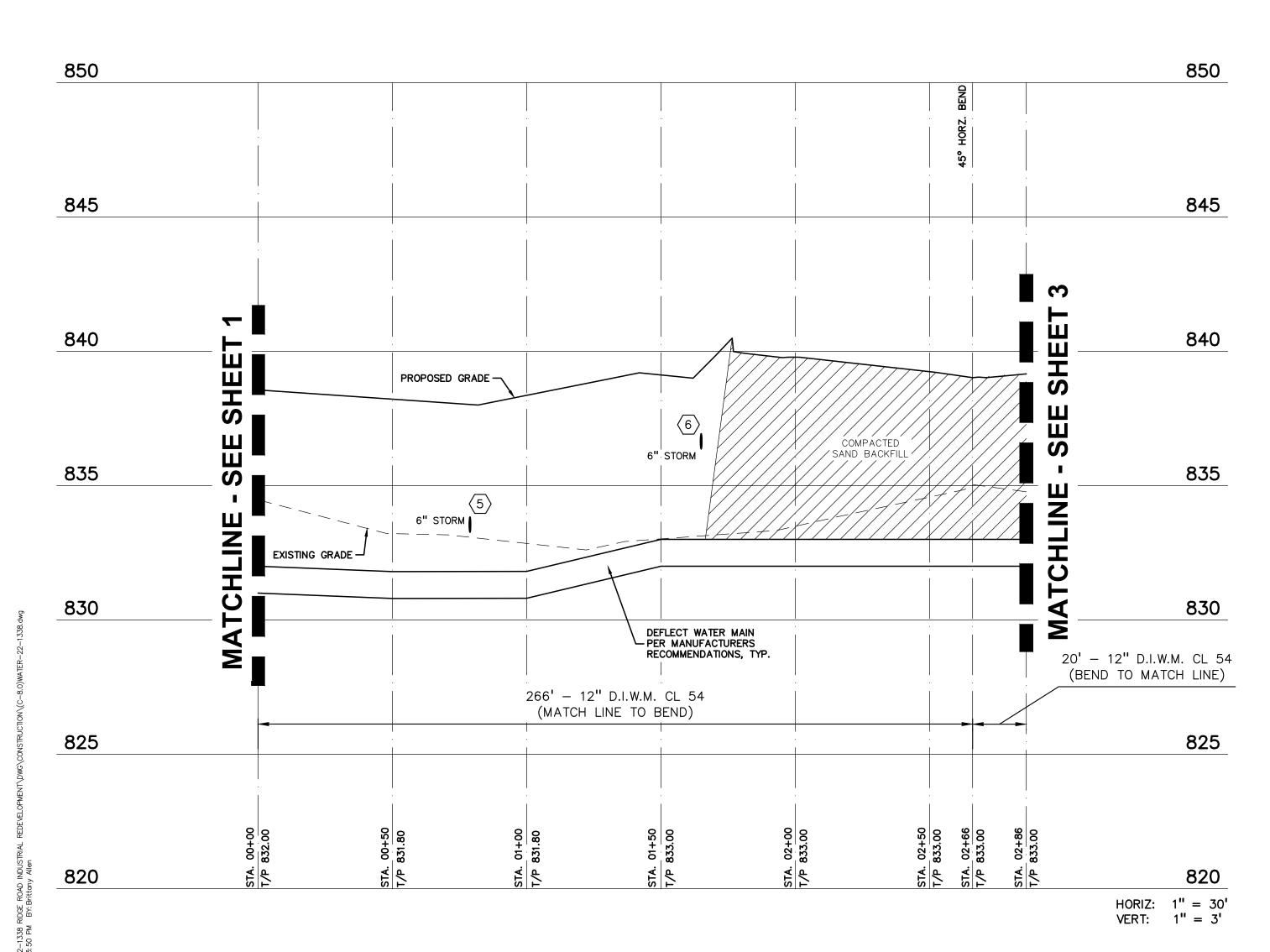
**PLYMOUTH** 

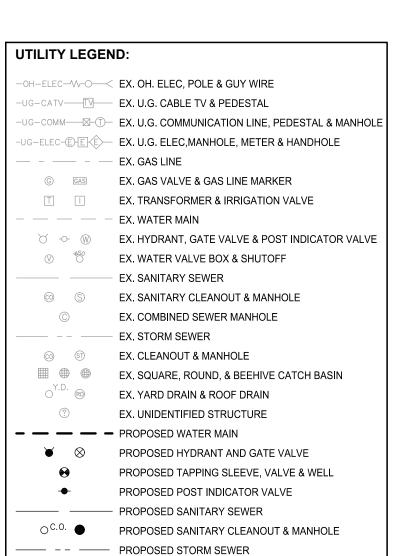
TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI

DRAWING TITLE **WATER MAIN PLAN AND PROFILE** -SHEET 1

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	BK
DRAWING NUMBER	· · ·







PUBLIC UTILITY EASEMENTS: ALL SANITARY SEWERS 8" AND LARGER IN DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER MAIN SHALL BE LOCATED IN A 12' WIDE EASEMENT.

PREMIUM TRENCH BACKFILL NOTE:

○ C.O. ■ PROPOSED STORM SEWER CLEANOUT & MANHOLE

PROPOSED CATCH BASIN, INLET & YARD DRAIN

ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE ( PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFI COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

E OF FILL	Know what's below. Call before you dig.
	CAUTION!!  THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

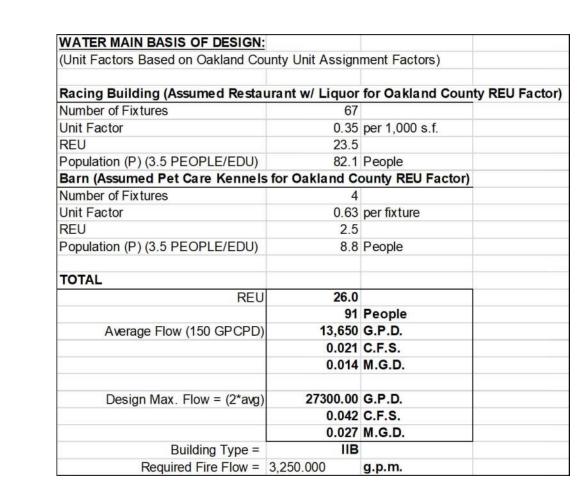
SCALE: 1" = 30' (HORZ.)

GROUP

t: 844.813.2949

www.peagroup.com

UTILITY CROSSING TABLE										
ROSSING		CRO	SSING P	IPE 1		CRO	SSING P	IPE 2	CLEARANCE	NOTES
5	6 "	ST	B/P=	833.30	12 "	WM	B/P=	831.80	1.50	DIP WATER MAIN
6	6 "	ST	B/P=	836.39	12 "	WM	T/P=	833.00	3.39	



CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

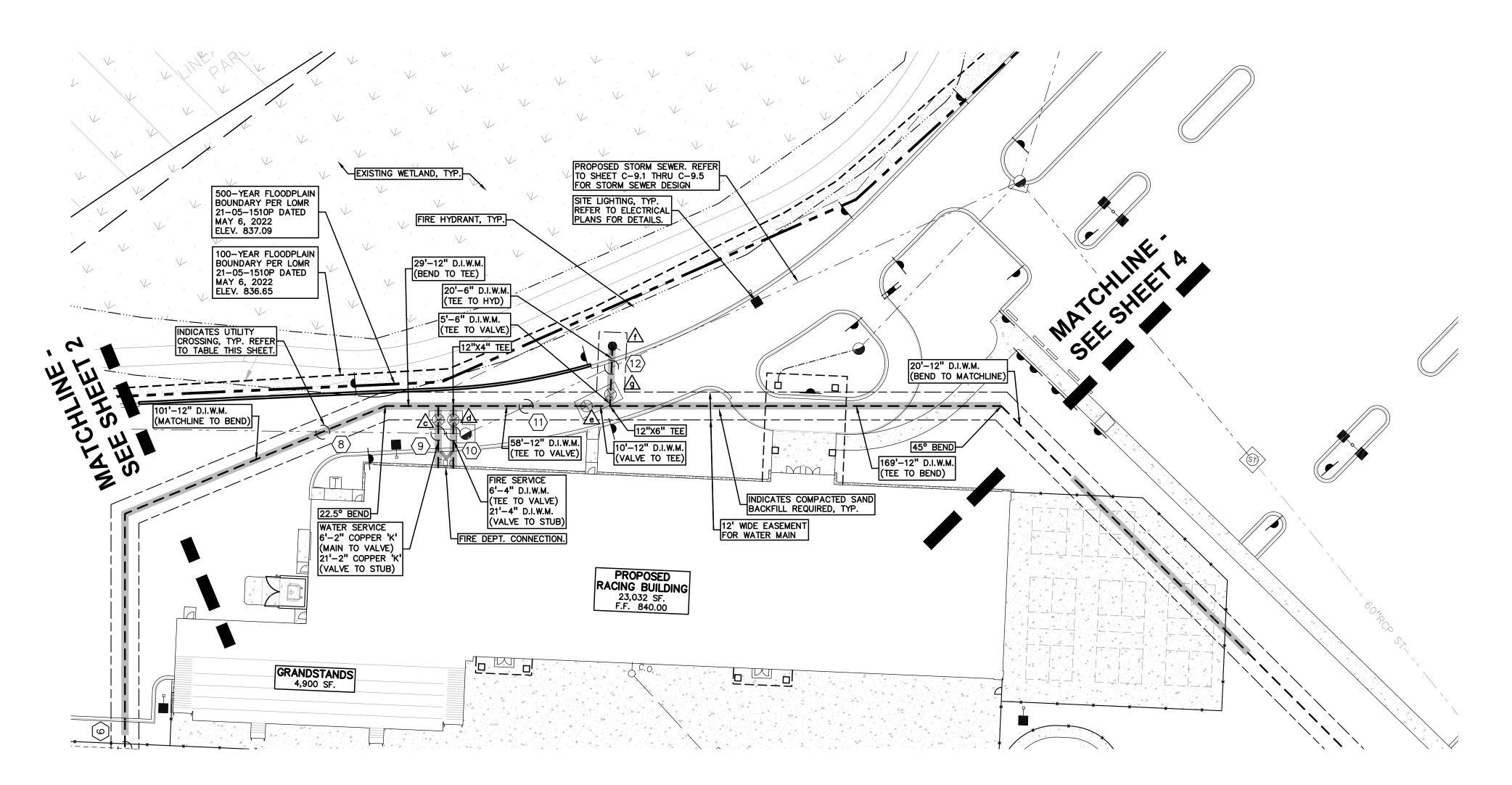
REVISIONS

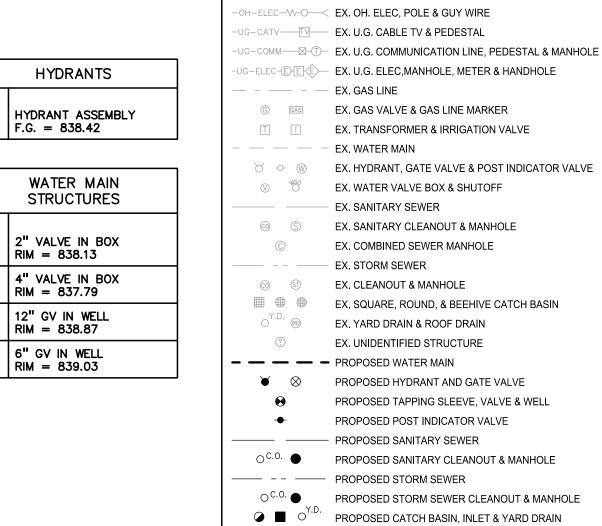
ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE

**WATER MAIN PLAN AND** PROFILE -SHEET 2

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
DDAMING NUMBER	





**UTILITY LEGEND:** 

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MAIN SHALL BE LOCATED IN A 12' WIDE EASEMENT.

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 UTILITY CROSSING TABLE

 CROSSING PIPE 2
 CLEARANCE
 N

 15 " ST B/P= 830.35
 12 " WM T/P= 827.90
 2.45

 15 " ST B/P= 830.21
 2 " WM T/P= 827.90
 2.31

 15 " ST B/P= 830.19
 4 " WM T/P= 827.90
 2.29

 24 " ST B/P= 829.47
 12 " WM T/P= 827.90
 1.57

6 " WM T/P= 827.90

NOTE:

REFER TO SHEET C-8.2 FOR

WATER MAIN BASIS OF DESIGN.

PEANHOLE

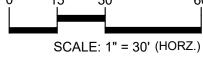
GROUP

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www.peagroup.com

EVALVE









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CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

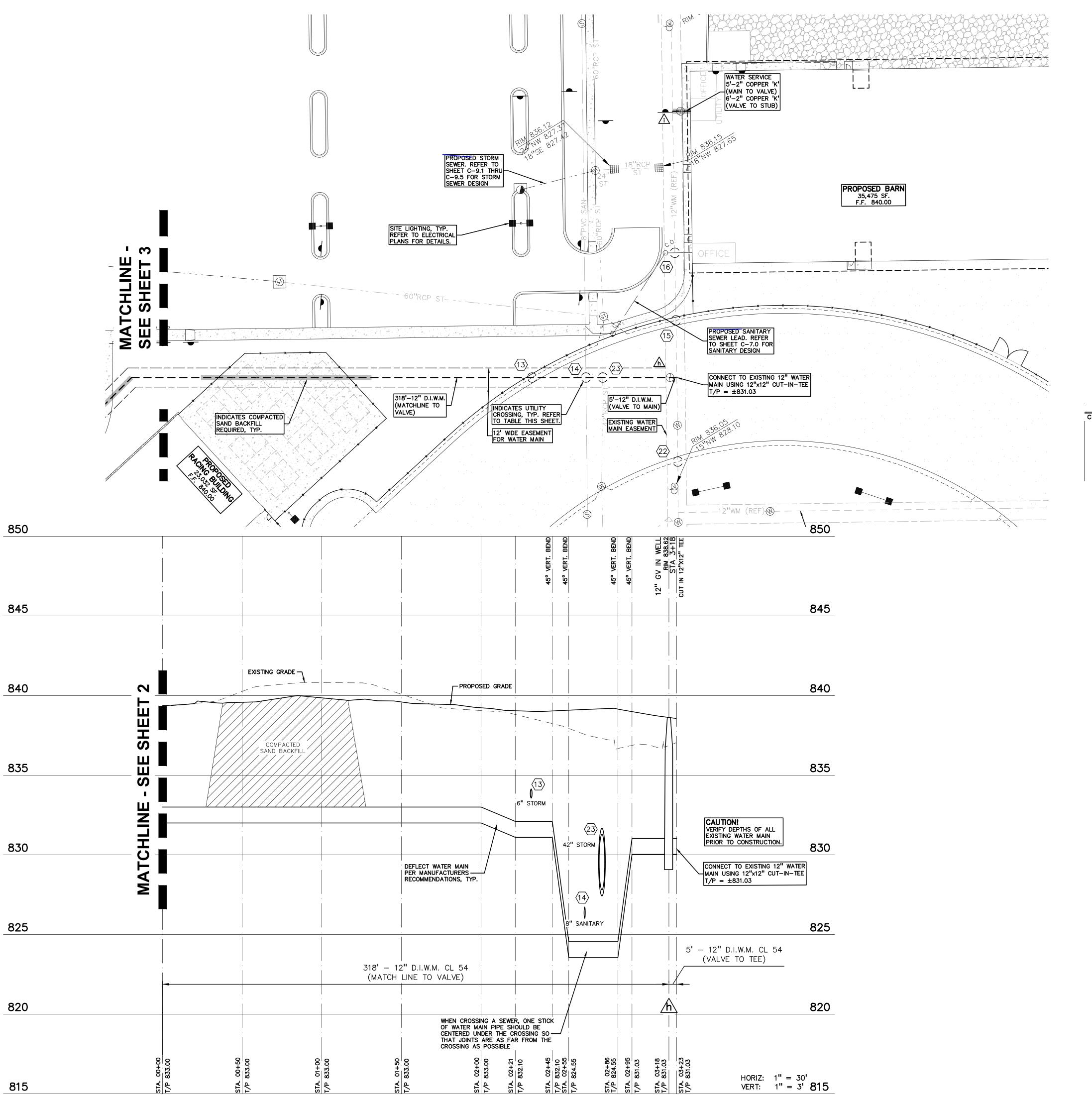
ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

WATER MAIN
PLAN AND
PROFILE SHEET 3

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
DRAWING NUMBER:	

C-8.3

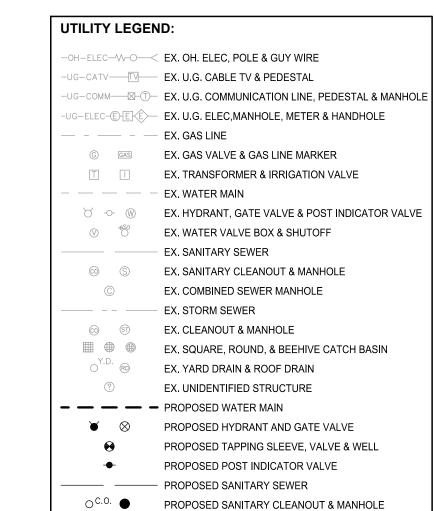
845											84
	BEND	BEND	BEND .	## TEE	WELL 838.87 1+88 HYD 'f' HYD 'F'	BEND			BEND		
	VERT.	VERT.	HORZ	2  X	STA STA E TO VERT.	VERT.			HORZ.		
	. 45°	45°	22.5°		12" GV 12"x6" TEE	45°	:		45°		
40					12						84
			PROP	OSED GRADE						4	
				EXISTING GRADE			COMPAG SAND BA	CTED		■ 出	
		COMPACTE SAND BACK	p ILL				SAND BA	CKFILL		■ SH	83
	ш									■ S = S	
I	<b>у</b> Ш <b>Т</b> /////////			(11)			<u>///////</u>	<u>/////////////////////////////////////</u>		_ ဟု	
_		(8)				<u> </u>					
-		15" STO	PRM.								83
				24" STOP	RM					<b>■</b> 5	
	WHEN CROSSING A SEWER, ONE STICK OF									MATCH	
	WHEN CROSSING A SEWER, ONE STICK OF WATER MAIN PIPE SHOULD BE CENTERED UNDER THE CROSSING SO THAT JOINTS ARE AS FAR FROM THE CROSSING AS POSSIBLE	58' -	- 12" D.I.W.M.	[I] Cl. 54		  - 	 			IÈ	
25	AS FAR FROM THE CROSSING AS POSSIBLE		(TEE TO VALV	E)						<b>F</b>	82
	29' -	- 12" D.I.W.M. (BEND TO TE	CL 54		10'	– 12" D.I. (VALVE T	W.M. CL 54 O TEE)				D.I.W.M. CL 54
	101' - 12" D.I.							D.I.W.M. CL 54		(BEND IC	MATCH LINE)
	(MATCH LINE	TO BEND)					(TEE 1	O BEND)		<u> </u>	
20				: 	<b>e</b>						82
		:				: 	:	:			
	STA. 00+00 T/P 833.00 STA. 00+54 T/P 833.00	STA. 00+61 T/P 827.90	01+01	827.90 01+50 827.90	STA. 01+88 1/P 827.90 STA. 01+98 1/P 827.90 STA. 02+08 1/P 827.90	2+16	02+50	03+00	03+50 833.00 03+67 833.00	833.00	
15	A 60 P 83 P 83 P 83	. F 90. 1 82	STA. 01 T/P 82	STA. 01 1/P 82 STA. 01 1/P 82	STA. 01 1/P 82 STA. 01 1/P 82 STA. 03	7	STA. 0.	STA. 0. T/P 83	STA. 0. T/P 83 STA. 0.	STA. 0. T/P 83	81



WATER MAIN STRUCTURES

h 12" GV IN WELL RIM = 838.62

i 2" VALVE IN BOX RIM = 839.64



--- PROPOSED STORM SEWER

PUBLIC UTILITY EASEMENTS:
ALL SANITARY SEWERS 8" AND LARGER IN
DIAMETER ARE TO BE PUBLIC AND SHALL BE
LOCATED IN A 20' WIDE EASEMENT. ALL WATER
MAIN SHALL BE LOCATED IN A 12' WIDE EASEMENT.

PROPOSED STORM SEWER CLEANOUT & MANHOLE

PREMIUM TRENCH BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF

PROPOSED CATCH BASIN, INLET & YARD DRAIN

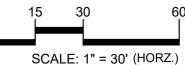
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					UTILITY C	ROSSI	NG TABI	_E		
CROSSING		CRO	SSING P	IPE 1		CROS	SSING PI	PE 2	CLEARANCE	NOTES
13	6 "	ST	B/P=	833.60	12 "	WM	T/P=	832.10	1.50	DIP WATER MAIN
14	8 "	SAN	B/P=	826.09	12 "	WM	T/P=	824.55	5.37	
15	6 "	ST	B/P=	835.28	12 "	WM	T/P=	832.09	3.19	
16	6 "	SAN	B/P=	834.40	12 "	WM	T/P=	830.80	3.60	
22	6 "	ST	B/P=	833.04	12 "	WM	T/P=	830.88	2.16	
23	42 "	ST	B/P=	827 42	12 "	WW	T/P=	824 55	2 87	

NOTE: REFER TO SHEET C-8.2 FOR WATER MAIN BASIS OF DESIGN. PEA GROUP t: 844.813.2949 www.peagroup.com









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PRIOR TO THE START OF CONSTRUCTION.

CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

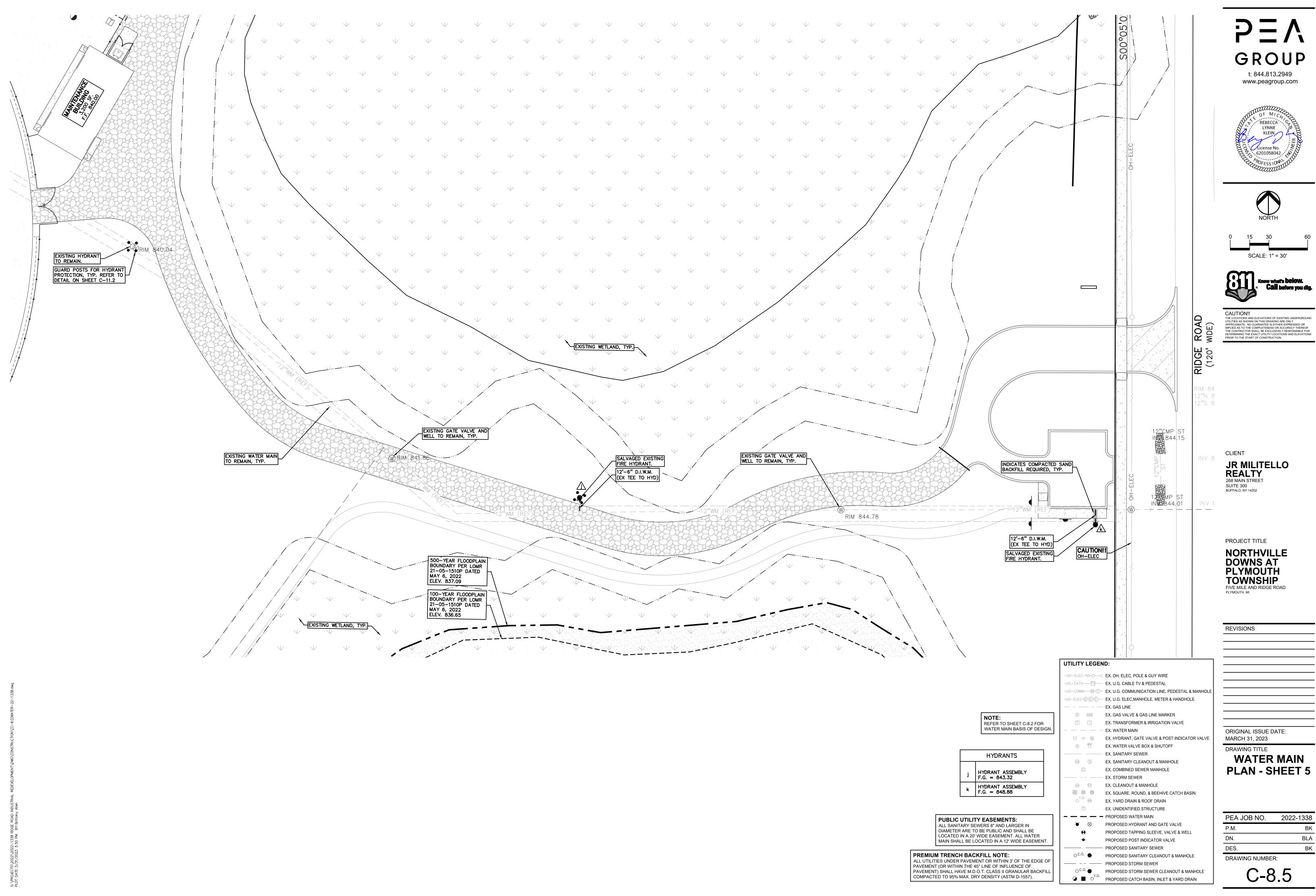
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS
ORIGINAL ISSUE DATE:
MARCH 31, 2023

WATER MAIN
PLAN AND
PROFILE SHEET 4

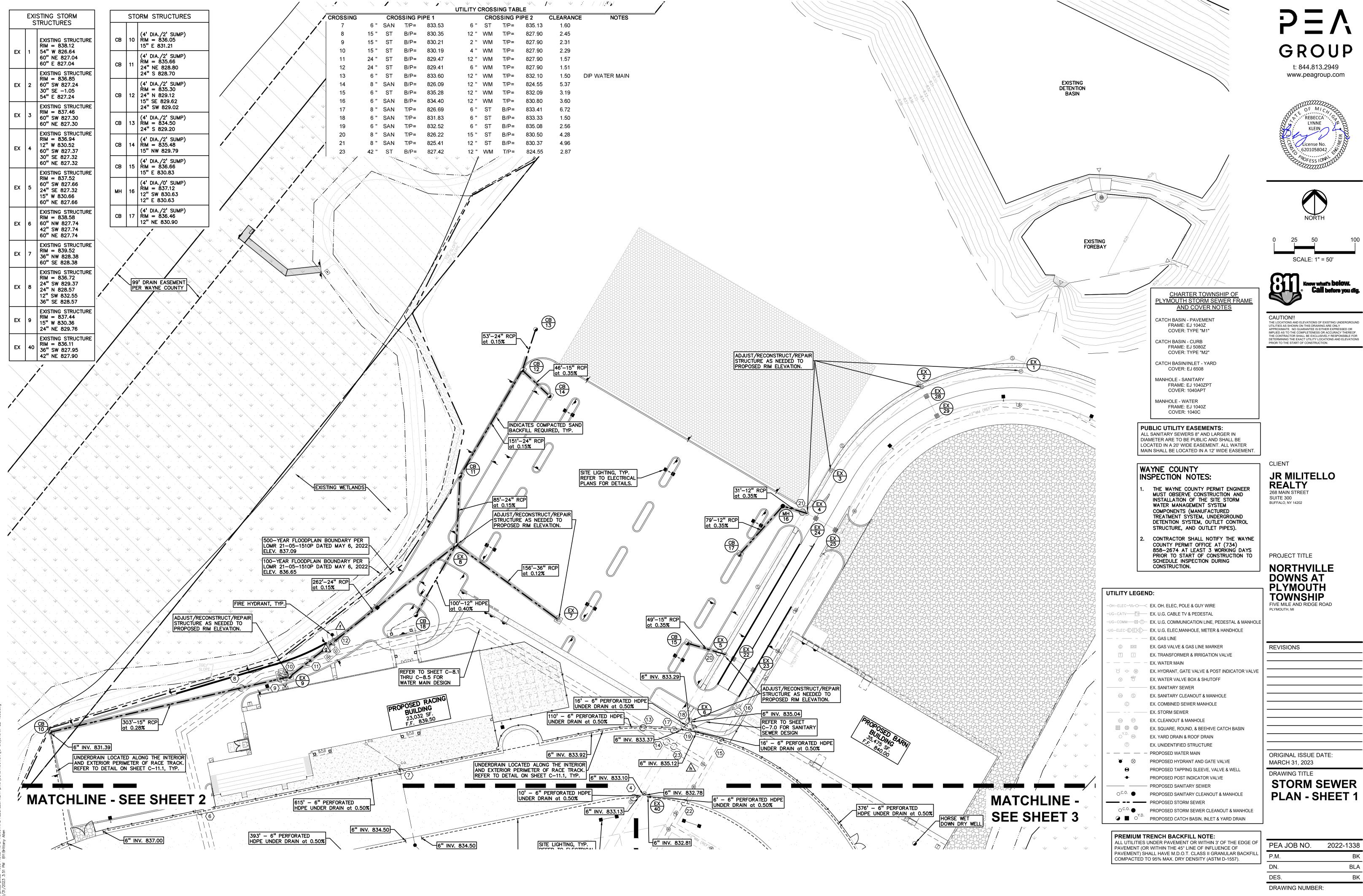
PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER	R:

C-8.4

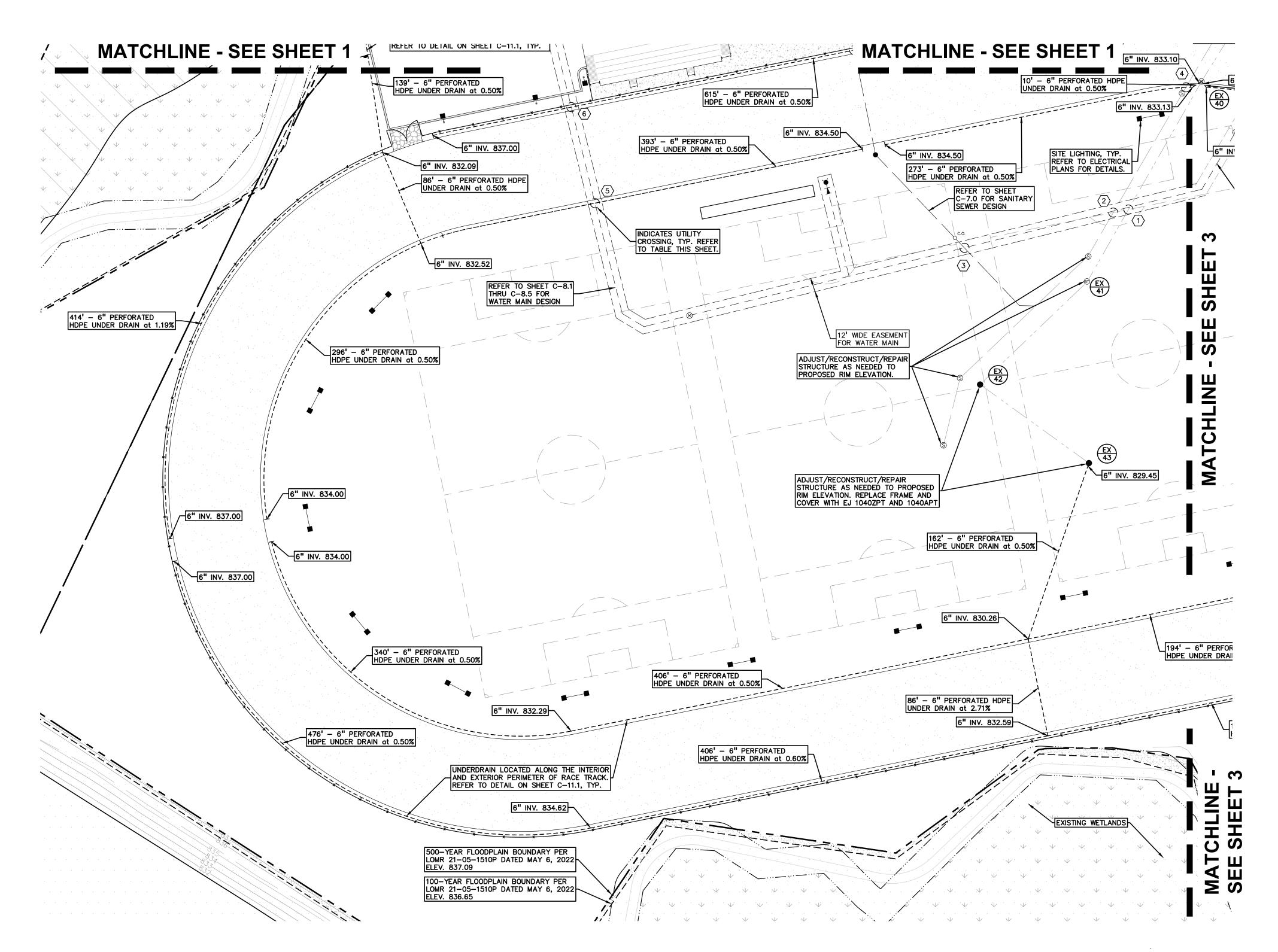


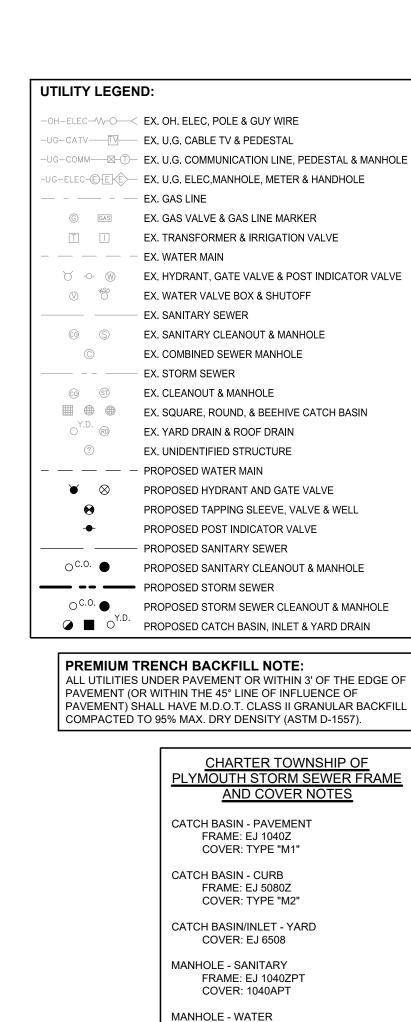
CAI	JTION!!	
THE L	OCATIONS AND ELEVATIONS OF EXISTING UNDERGRO	UND
UTILIT	IES AS SHOWN ON THIS DRAWING ARE ONLY	
APPR	OXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR	
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THE C	ONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FO	OR
DETER	RMINING THE EXACT UTILITY LOCATIONS AND ELEVATION	SNC
PRIOF	TO THE START OF CONSTRUCTION.	

BK
BLA
BK



C-9.1





WAYNE COUNTY INSPECTION NOTES:

FRAME: EJ 1040Z COVER: 1040C

DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER

PUBLIC UTILITY EASEMENTS:
ALL SANITARY SEWERS 8" AND LARGER IN

THE WAYNE COUNTY PERMIT ENGINEER MUST OBSERVE CONSTRUCTION AND INSTALLATION OF THE SITE STORM WATER MANAGEMENT SYSTEM COMPONENTS (MANUFACTURED TREATMENT SYSTEM, UNDERGROUND DETENTION SYSTEM, OUTLET CONTROL STRUCTURE, AND OUTLET PIPES).

CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY PERMIT OFFICE AT (734) 858–2674 AT LEAST 3 WORKING DAYS PRIOR TO START OF CONSTRUCTION TO SCHEDULE INSPECTION DURING CONSTRUCTION.

		STING STORM TRUCTURES
EX	40	EXISTING STRUCTU RIM = 836.11 36" SW 827.95 42" NE 827.90
EX	41	EXISTING STRUCTU RIM = 838.80 30" SW 828.18 36" NE 828.08
EX	42	EXISTING STRUCTU RIM = 839.98 24" SE 828.39 30" NE 828.34
EX	43	EXISTING STRUCTU RIM = 838.98 24" NW 828.72

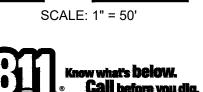
	UTILITY CROSSING TABLE										
CROSSING	ING CROSSING PIPE 1 CROSSING PIPE 2						CLEARANCE	NOTES			
1	36 "	ST	B/P=	827.70	12 "	WM	T/P=	825.40	2.30		
2	8 "	SAN	B/P=	826.90	12 "	WM	T/P=	825.40	1.50	DIP WATER MAIN	
3	6 "	SAN	B/P=	829.85	12 "	WM	T/P=	828.35	1.50		
4	8 "	SAN	T/P=	827.80	6 "	ST	B/P=	833.10	5.30		
5	6 "	ST	B/P=	833.30	12 "	WM	B/P=	831.80	1.50	DIP WATER MAIN	
6	6 "	ST	B/P=	836.39	12 "	WM	T/P=	833.00	3.39		











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THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

J 1 CLIEN

#### JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE

DOWNS AT

PLYMOUTH

TOWNSHIP

FIVE MILE AND RIDGE ROAD

PLYMOUTH, MI

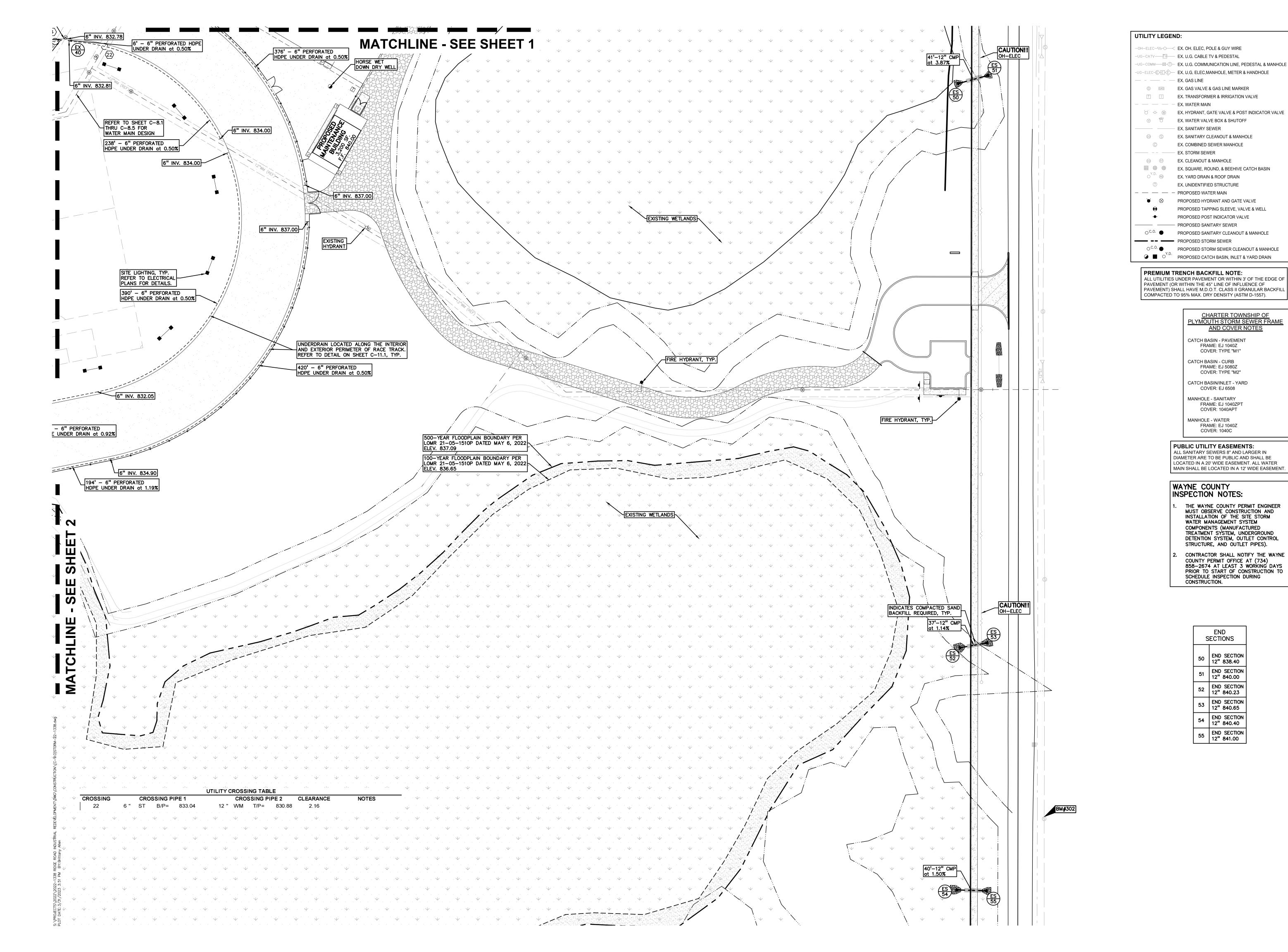
REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE

STORM SEWER PLAN - SHEET 2

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER	₹:









SCALE: 1" = 50'

THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUN UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY

UTILLITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CAUTION!!

PREMIUM TRENCH BACKFILL NOTE: ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

PROPOSED STORM SEWER CLEANOUT & MANHOLE

EX. TRANSFORMER & IRRIGATION VALVE

EX. WATER VALVE BOX & SHUTOFF

EX. COMBINED SEWER MANHOLE

EX. UNIDENTIFIED STRUCTURE

PROPOSED HYDRANT AND GATE VALVE PROPOSED TAPPING SLEEVE, VALVE & WELL

PROPOSED POST INDICATOR VALVE

EX. CLEANOUT & MANHOLE

EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE

EX. WATER MAIN

EX. SANITARY SEWER

#### CHARTER TOWNSHIP OF PLYMOUTH STORM SEWER FRAM AND COVER NOTES

CATCH BASIN - PAVEMENT FRAME: EJ 1040Z COVER: TYPE "M1"

CATCH BASIN - CURB FRAME: EJ 5080Z COVER: TYPE "M2"

CATCH BASIN/INLET - YARD COVER: EJ 6508 MANHOLE - SANITARY

COVER: 1040C

FRAME: EJ 1040ZPT COVER: 1040APT MANHOLE - WATER FRAME: EJ 1040Z

PUBLIC UTILITY EASEMENTS: ALL SANITARY SEWERS 8" AND LARGER IN DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER MAIN SHALL BE LOCATED IN A 12' WIDE EASEMENT.

#### WAYNE COUNTY INSPECTION NOTES:

THE WAYNE COUNTY PERMIT ENGINEER
MUST OBSERVE CONSTRUCTION AND
INSTALLATION OF THE SITE STORM
WATER MANAGEMENT SYSTEM COMPONENTS (MANUFACTURED
TREATMENT SYSTEM, UNDERGROUND
DETENTION SYSTEM, OUTLET CONTROL STRUCTURE, AND OUTLET PIPES).

COUNTY PERMIT OFFICE AT (734)
858-2674 AT LEAST 3 WORKING DAYS
PRIOR TO START OF CONSTRUCTION TO
SCHEDULE INSPECTION DURING
CONSTRUCTION.

PROJECT TITLE **NORTHVILLE** 

REALTY

268 MAIN STREET SUITE 300 BUFFALO, NY 14202

**DOWNS AT** PLYMOUTH TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI

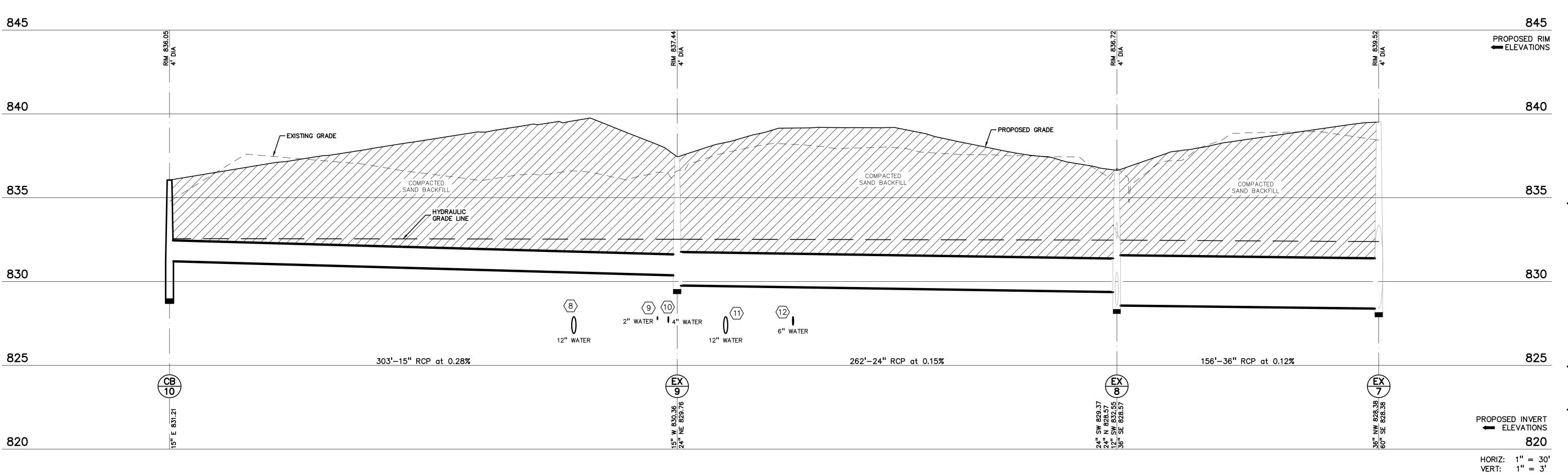
50	END SECTION 12" 838.40
51	END SECTION 12" 840.00
52	END SECTION 12" 840.23
53	END SECTION 12" 840.65
54	END SECTION 12" 840.40
55	END SECTION 12" 841.00

SECTIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

STORM SEWER PLAN - SHEET 3

PEA JOB NO.	2022-133
P.M.	В
DN.	BL
DES.	В
DRAWING NUMBER:	



PROPOSED GRADE

53'-24" RCP at 0.15%

24" N 829.12 15" SE 829.62 24" SW 829.02

EXISTING GRADE

COMPACTED SAND BACKFILL

151'-24" RCP at 0.15%

845

840

835

830

825

820

815

PROPOSED INVERT
ELEVATIONS

HORIZ: 1'' = 30'VERT: 1'' = 3'

PROPOSED RIM

← ELEVATIONS

845

840

835

830

825

820

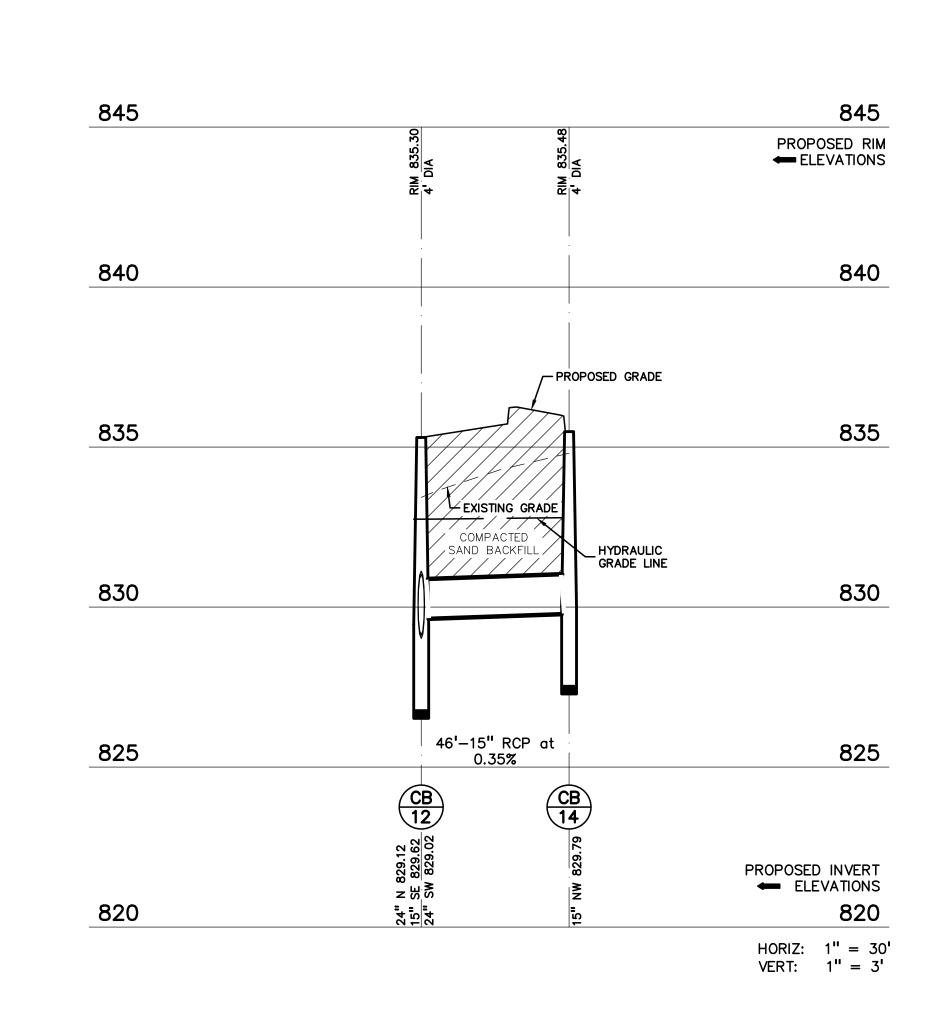
815

COMPACTED SAND BACKFILL

85'-24" RCP at 0.15%

24" SW 829.37 24" N 828.57 12" SW 832.55 36" SE 828.57

HYDRAULIC GRADE LINE





www.peagroup.com

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CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

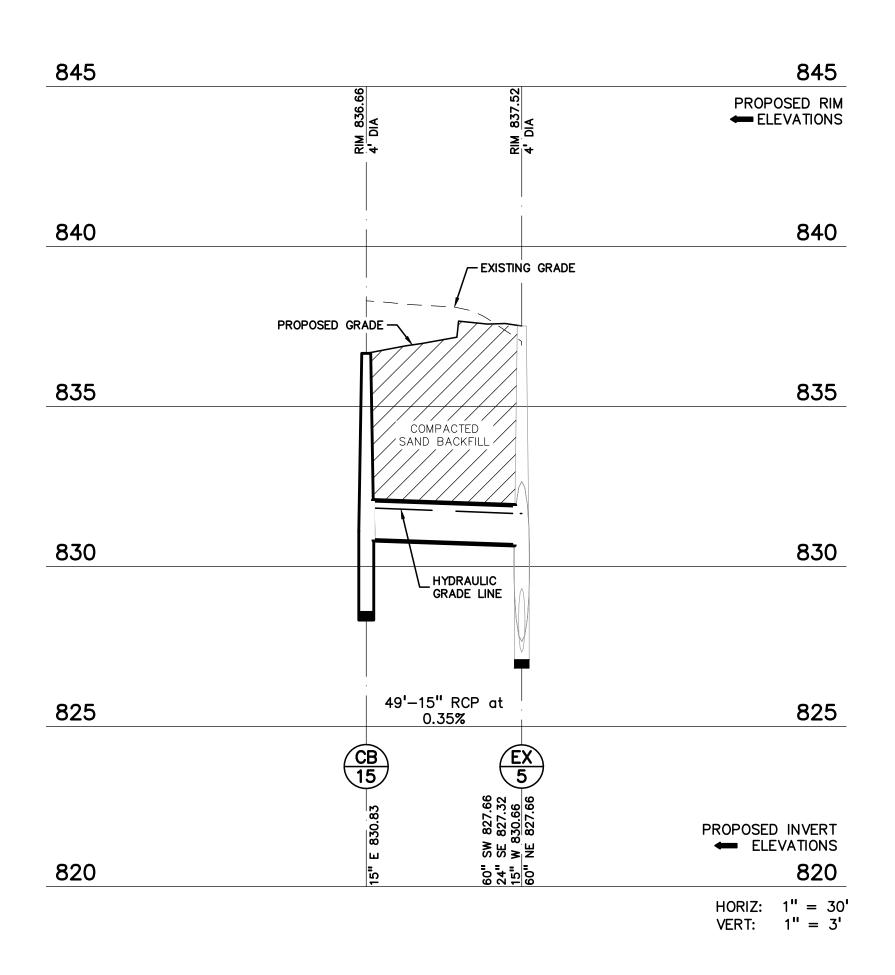
PROJECT TITLE

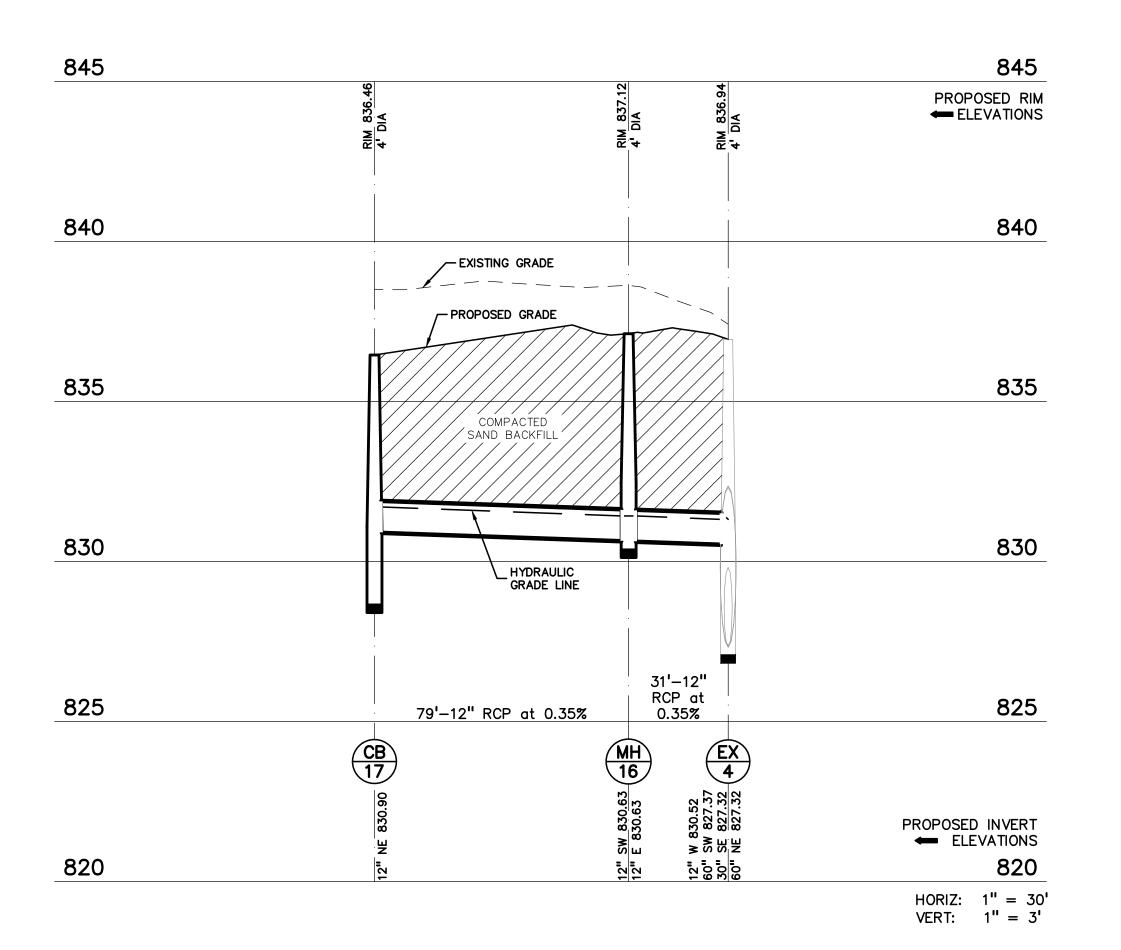
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE STORM SEWER PROFILES -SHEET 1

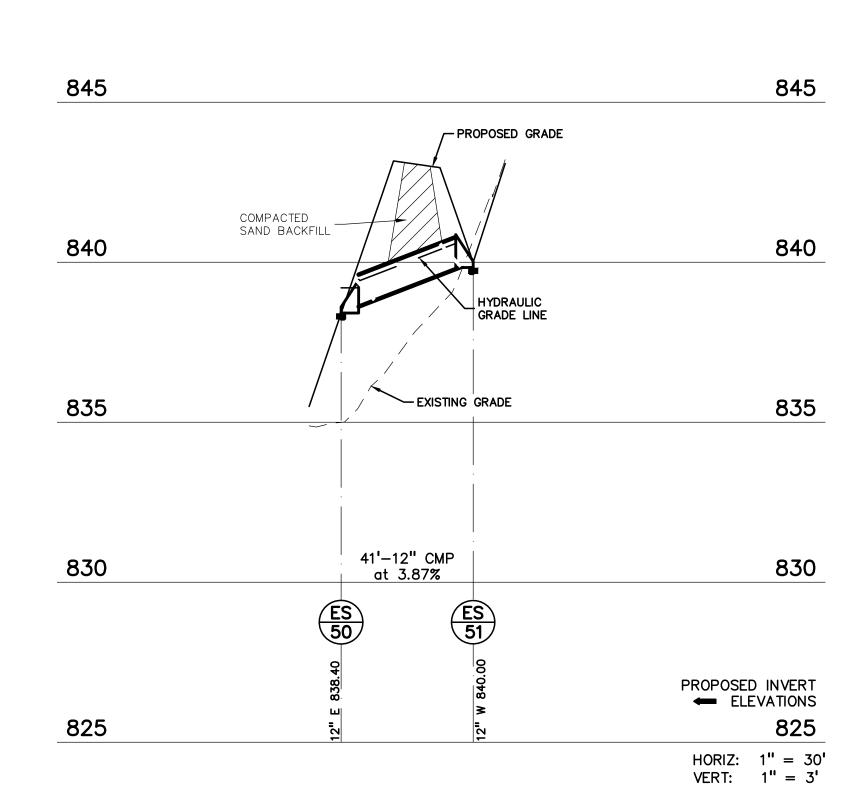
PEA JOB NO. 2022-1338 BLA DES. DRAWING NUMBER:

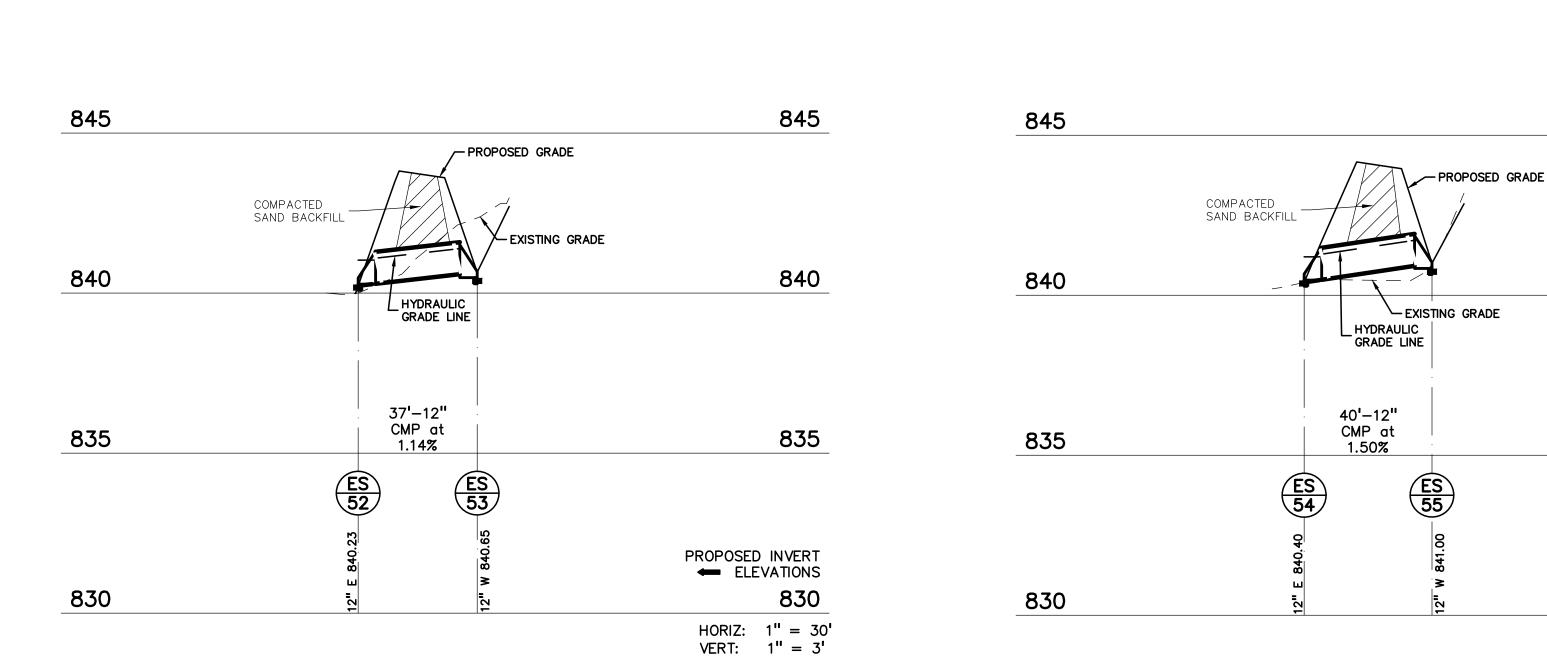




850

850





850

850







CAUTION!!

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CLIENT

JR MILITELLO
REALTY

268 MAIN STREET
SUITE 300
BUFFALO, NY 14202

850

845

840

835

830

PROPOSED INVERT
ELEVATIONS

HORIZ: 1'' = 30'VERT: 1'' = 3' NORTHVILLE
DOWNS AT
PLYMOUTH
TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI

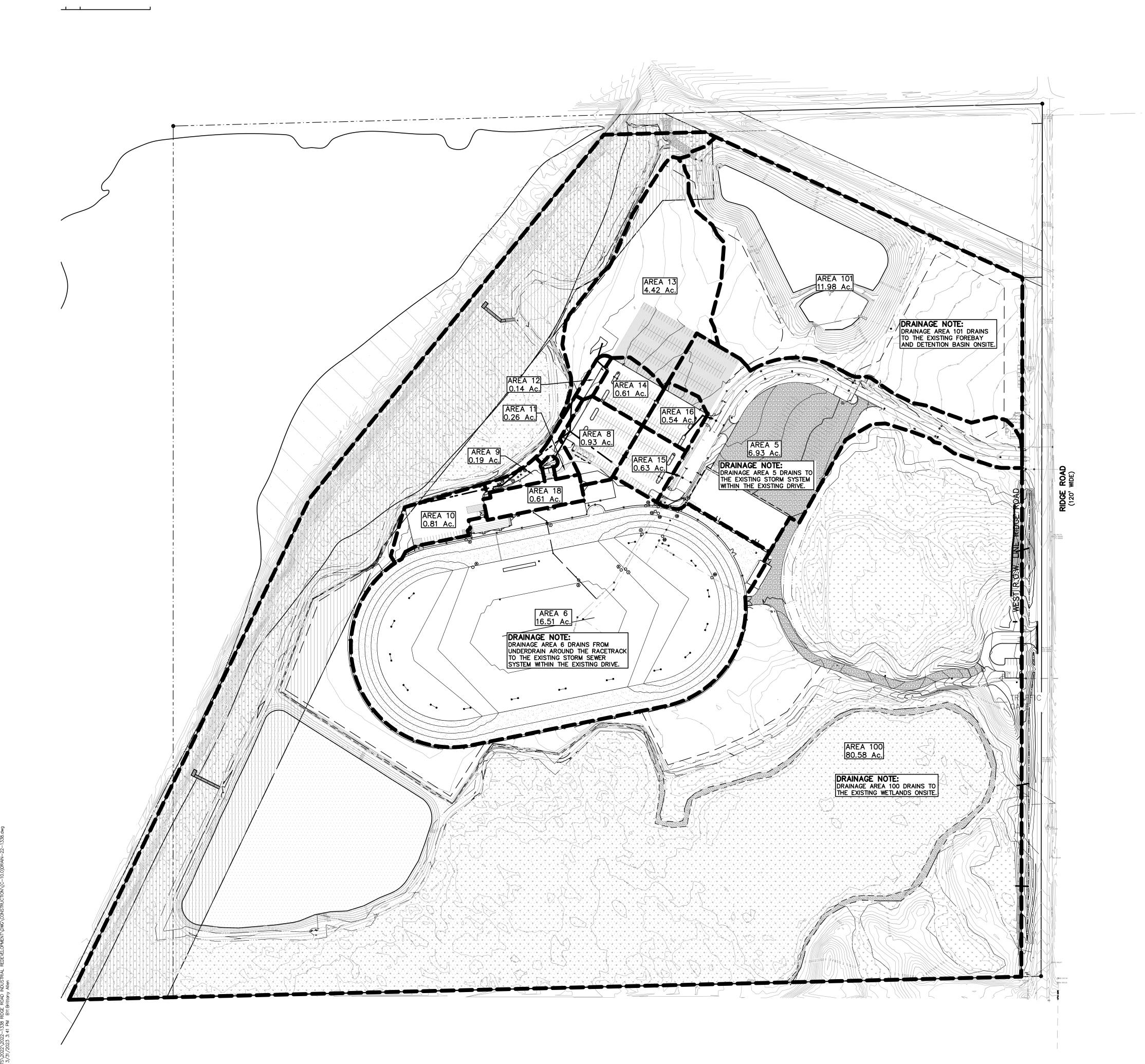
REVISIONS

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ORIGINAL ISSUE DATE:
MARCH 31, 2023
DRAWING TITLE
STORM SEWER
SIURIVI SEWER

	PEA JOB NO.	2022-1338
·	P.M.	BK
	DN.	BLA
	DES.	BK
,	DRAWING NUMBER:	

PROFILES -SHEET 2

C-9.5









0 75 150 30 SCALE: 1" = 150'



CAUTION!!

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CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAINAGE PLAN

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER	₹:

C-10.1

1.29

22.30 feet min.

Max. allowable head on weir, H =

Width of weir, B = Qpeak/(C \* Hmax^(3/2)) =

#### **DETENTION BASIN CALCULATIONS** Riser Outlet Pipe and Flood Control Flow Restrictor **Detention Basin Calculations** 8.07 cfs PEA Project No. = 2018-234 Riser Outlet Pipe Diameter: 18 Inch BY: JWJ 828.50 ft. Zout = upstream crown elev. of riser outlet pipe= Note: Basin has a pumped outlet 3.14 ft. Hmax = Z100 - Zout = **Detention Basin Design** Aout = Qmax / (0.62 x (2 x 32.2 x Hmax)^0.5)= 0.92 s.f. 12.96 inches Dout = 53.800 Ac. Contributing Tributary to Detention Basin = Average 'C' On Site Therefore, use: 18 inch dia pipe with: 13 inch hole cut in end cap Maximum Allowable Outflow (Qa) = 0.15 cfs/Ac. x A = Aout= (actual) 0.92 s.f. Max. Allowable Outflow per Acre Imperviousness (Qo) = Qa/(AxC) = 0.19 cfs Actual Maximum Release Rate: $T100 = -45 + (19,845/Qo)^0.5 =$ 280.33 min. 8.05 cfs 8.07 $Qmax = 0.62 \times Ao \times (2 \times g \times Hmax)^0.5=$ Vs100 = [(17,649 x T100) / (T100 +45)] - 40 x Qo x T100 = 13,105 C.F./Ac. Imperv. (must be less than Qmax and within 10%) Vt100 = Vs100 x A x C = 564,039 C.F Riser Outlet Pipe Slope: Vt Adjusted (Vt100 - FF Volume) = 485,921 C.F. Bank Full Flood Storage Volume Aout = 222,086 C.F. $Vtbf = 5,160 \times A \times C =$ Vtbf Adjusted (Vtbf - FF Volume) = 143,968 C.F. 0.375 feet R = Dout / 4 = Storage Provided in Detention Basin and Forebay n = (0.012 for PVC, 0.013 for RCP) = 0.012 in Addition to First Flush Storage Volume Slope (ft./ft.) = [(Qmax x n) / (1.486 x Aout x R^2/3)]^2 = Elev. (feet) Forebay 0.50% Only Only (only above (only above Volume Check Velocity at Full Pipe Flow: elev. Z<sub>ff</sub>) OK! V = Qmax / Aout = 4.56 ft/sec (must be < 8ft/sec and > 2.5 ft/sec) 828.00 829.00 93402.00 830.00 101750.00 97,576 275,466 First Flush Elevation 830.71 126835.01 81,148 Therefore, use: 18 inch outlet pipe at 394,881 538,151 831.00 832.00 38,268 137081.00 (for RISER OUTLET PIPE) 0.50% slope with 13 inch hole cut in end cap 828.63 Bank full storage elev. (Zbf Adjusted) = 831.64 100-year storage elev. (Z100 Adjusted) = Riser Orifices Sizing: Release Bank Full Volume in less than 40 hours. Qavg bf = Vtbf / 144,000 = 1.54 cfs Number of holes required: 1.087 ft. $Havg = 0.667 \times (Zbf - Zout) =$ 0.29725 s.f. Ao = Qavg bf / $(0.62 \times (2 \times g \times Havg)^0.5)$ = 1.0000 in Hole diameter in standpipe = Hole area, do = 0.00545 s.f. Req'd # of holes = 54.49916758 Therefore, use: Actual Release Rate = 0.62 x Ao x (2 x g x Havg)^0.5 = 1.53 cfs 40.37 hrs Actual Holding Time (Tbf) = (Vtbf) / (Qavg bf x 3600)= (must be at least 40 hours)

## STORM WATER NARRATIVE:

PREVIOUSLY THE DEVELOPMENT SITE WAS DESIGNED AND CONSTRUCTED TO BE A CONDO DEVELOPMENT FOR 8 INDUSTRIAL UNITS. AS PART OF THAT PREVIOUS DEVELOPMENT, TECHNE DRIVE WAS INSTALLED WITH STORM SEWER, SANITARY SEWER, AND WATER MAIN TO SERVICE THE 8 INDUSTRIAL SITES. A FOREBAY AND DETENTION BASIN WERE ALSO CONSTRUCTED AS PART OF THAT DEVELOPMENT. CALCULATIONS ON THIS SHEET SHOW THAT THE EXISTING DETENTION POND WAS DESIGNED TO STORE 485,921 C.F. FOR THE 100-YEAR STORM. THE FOREBAY WAS DESIGNED TO STORE 78,118 C.F. THE WAYNE COUNTY METHOD FROM 2007 WAS USED TO DETERMINE THE SIZE OF THE EXISTING POND.

THE PROPOSED DESIGN WILL KEEP IN PLACE MUCH OF THE EXISTING STORM SEWER SYSTEM WITH NEW STORM RUNS ADDED TO DRAIN THE NEW DEVELOPMENT. LOCATED ON THIS SHEET ARE THE DETENTION CALCULATION PER THE CURRENT WAYNE COUNTY DESIGN METHOD WHICH SHOW THE EXISTING VOLUME OF THE POND EXCEEDS VOLUME REQUIREMENTS OF THE UPDATED WAYNE COUNTY DETENTION CALCULATIONS OF 377,301 C.F. THE REQUIRED FOREBAY VOLUME OF 19,782 C.F. IS ALSO EXCEEDED.

## STORM SEWER SYSTEM DESIGN

## Location: Wayne County

 $I = B/(T+D) \hat{E}$  B = 63.00 D = 12.33 E = 0.84 C = varies T = 15 (min.) Pipe "n" Value = 0.013

FROM	TO	AREA	COEF.		TOTAL	TOTAL	TIME	INT.	FLOW	PIPE	PIPE	PIPE	PIPE	MIN HG	VEL.	TIME	H.G.L.	ELEV.	RIM E	ELEV.	INVERT	ELEV.	PIPE C	OVER	HGL C	COVER
STR	STR	(A)	С	A x C	AREA	AREA	t	1	Q	CAP.	DIA.	LENGTH	SLOPE	PER "Q"	FULL	FLOW	UP	DOWN								
		(Acres)			(AxC)	(Acres)	(min.)	(in/hr)	(cfs)	(cfs)	(in.)	(ft.)	(%)		(ft./sec)	(min.)	STREAM									
					***************************************																					
10	9	0.81		0.68	0.68	0.81	15.00		2.65	3.42	15	303	0.28	0.17%	2.8	1.8	833.02	832.51	836.05	837.44	831.21	830.36	3.41	5.64	3.03	4.93
9	8	0.19		0.14	0.82	1.00	16.80	L	3.03	8.76	24	262	0.15	0.02%	2.8	1.6	832.51	832.46	837.44	836.72	829.76	829.37	5.43	5.10	4.93	4.25
8	7	0.93		0.78	4.29	7.98	18.40		15.21	23.10	36	156	0.12	0.05%	3.3	0.8	832.46	832.38	836.72	839.52	828.57	828.38	4.81	7.81	4.25	7.14
7	6	0.00	0.00	0.00	4.29	7.98	19.20		15.21	145.70	60	205	0.31	0.00%	7.4	0.5	832.38	831.74	839.52	838.46	828.38	827.74	5.64	5.22	7.14	6.72
6	5	16.51	0.32	5.32	9.60	24.49	19.70	L	32.90	78.13	60	92	0.09	0.02%	4.0	0.4	831.74	831.66	838.46	837.51	827.74	827.66	5.22	4.35	6.72	5.85
5	4	6.93	0.49	3.40	13.58		20.10		46.04	98.83	60	201	0.14	0.03%	5.0	0.7	831.66	831.37	837.51	836.95	827.66	827.37	4.35	4.09	5.85	5.59
4	3	0.00		0.00	14.03		20.80		46.71	49.41	60	61	0.04	0.03%	2.5	0.4	831.32	831.30	836.95	837.46	827.32	827.30	4.14	4.66	5.64	6.16
3	2	0.00		0.00	14.03		21.20		46.71	52.09	60	152	0.04	0.03%	2.7	1.0	831.30	831.24	837.46	836.85	827.30	827.24	4.66	4.12	6.16	5.62
2	1	0.00	0.00	0.00	14.03	32.59	22.20	<u> </u>	46.71	136.24	54	124	0.48	0.06%	8.6	0.2	831.11	831.04	836.85	838.12	827.24	826.64	4.66	6.52	5.74	7.08
1	0	0.00	0.00	0.00	14.03	32.59	22.40	3.20	46.71	107.38	60	118	0.17	0.03%	5.5	0.4	831.04	830.84	838.12	832.64	827.04	826.84	5.58	0.30	7.08	1.80
40	40	4.40	0.00	4.00	4.00	1 10	45.00	0.04	5.40	0.70			0.45	0.050/			000 77	000 74	004.50	005.00	000.00	000 10			4 70	0.50
13	12	4.42		1.33	1.33	4.42	15.00		5.19	8.76	24	53	0.15	0.05%	2.8	0.3	832.77	832.74	834.50	835.30	829.20	829.12	3.05	3.93	1.73	2.56
12	11	0.14		0.10	1.95	5.18	15.30	L	7.55	8.76	24	151	0.15	0.11%	2.8	0.9	832.74	832.57	835.30	835.66	829.02	828.80	4.03	4.61	2.56	3.09
11	8	0.26	0.75	0.19	2.14	5.44	16.20	3.77	8.08	8.76	24	85	0.15	0.13%	2.8	0.5	832.57	832.46	835.66	836.72	828.70	828.57	4.71	5.90	3.09	4.25
14	12	0.61	0.04	0.51	0.51	0.61	15.00	2.01	2.01	3.82	15	46	0.35	0.10%	3.1	0.2	832.78	832.74	835.48	835.30	829.79	829.62	4.26	4.24	2.70	2.56
14	12	0.01	0.04	0.51	0.51	0.01	13.00	3.91	2.01	3.02	13	40	0.33	0.10%	3.1	0.2	032.70	032.74	633.46	633.30	029.79	029.02	4.20	4.24	2.70	2.30
15	5	0.63	0.01	0.58	0.58	0.63	15.00	3 01	2.25	3.82	15	49	0.35	0.12%	3.1	0.3	831.83	831.66	836.66	837.51	830.83	830.66	4.40	5.41	4.83	5.85
	3	0.00	0.31	0.50	0.30	0.00	13.00	3.31	2.20	3.02	13		0.00	0.1270	J. 1	0.5	001.00	031.00	030.00	007.01	000.00	030.00	4.40	3.41	4.00	3.03
17	16	0.00	0.00	0.00	0.00	0.00	15.00	3.91	0.00	2.11	12	79	0.35	0.00%	2.7	0.5	831.70	831.43	836.46	837.13	830.90	830.63	4.38	5.33	4.75	5.70
16	4	0.54	0.82		0.45	0.54	15.50		1.72	2.11	12	31	0.35	0.23%	2.7	0.2	831.43	831.32	837.13	836.95	830.63	830.52	5.33	5.27	5.70	5.64
	•		0.02	0. 10	<u> </u>	1 0.0 1	10.00	0.00	<b>-</b>			<u>-</u>	0.00	0.2070		0.2	30		001110		300.00		0.00	V	0.10	0.01
18	8	0.61	0.92	0.56	0.56	0.61	15.00	3.91	2.18	2.25	12	100	0.40	0.37%	2.9	0.6	833.75	833.35	838.50	836.72	832.95	832.55	4.38	3.00	4.75	3.37
	-																									
43	42	0.00	0.00	0.00	0.00	0.00	15.00	3.91	0.00	12.18	24	117	0.29	0.00%	3.9	0.5	831.74	831.74	838.98	839.98	828.72	828.39	8.01	9.34	7.24	8.24
42	41	0.00	0.00	0.00	0.00	0.00	15.50	3.85	0.00	14.21	30	129	0.12	0.00%	2.9	0.7	831.74	831.74	839.98	838.80	828.34	828.18	8.85	7.83	8.24	7.06
41	40	0.00	0.00	0.00	0.00	0.00	16.20		0.00	17.00	36	201	0.07	0.00%	2.4	1.4	831.74	831.74	838.80	836.11	828.08	827.95	7.39	4.82	7.06	4.37
40	6	0.00	0.00	0.00	0.00	0.00	17.60	3.63	0.00	38.96	42	107	0.15	0.00%	4.1	0.4	831.74	831.74	836.11	838.46	827.90	827.74	4.33	6.84	4.37	6.72
51	50	0.00	0.00	0.00	0.00	0.00	15.00	3.91	0.00	7.01	12	41	3.87	0.00%	8.9	0.1	840.80	839.20	839.08	837.50	840.00	838.40	-2.08	-2.07	-1.71	-1.70
53	52	0.00	0.00	0.00	0.00	0.00	15.00	3.91	0.00	3.80	12	37	1.14	0.00%	4.8	0.1	841.45	841.03	841.74	841.53	840.65	840.23	-0.09	0.13	0.28	0.50
55	54	0.00	0.00	0.00	0.00	0.00	15.00	3.91	0.00	4.36	12	40	1.50	0.00%	5.6	0.1	841.80	841.20	842.09	841.72	841.00	840.40	-0.08	0.16	0.29	0.52

# DETENTION CALCULATIONS PER UPDATED WAYNE COUNTY STANDARDS

Site Drainage Data				
Select County:	Wayne			
Existing				
Natural Greenspace area:	71.67	acre	C =	0.2
Select NCRS Soil type:	C			
Improved Greenspace area:		acre	C =	0.25
Select NCRS Soil type:	С			
Wooded Area:	51.94	acre	C =	0.25
Select NCRS Soil type:	С			
Impervious Area:	1.55	acre	C =	0.9
Greenbelt Area:	123.61	acre	C =	0.25
Total Area (A):	125.16	acre		
Weighted Coefficient of Runof		0.2	6	
Proposed				
Natural Greenspace area:	65.21	acre	C =	0.25
Select NCRS Soil type:	C			
Improved Greenspace area:	1.00	acre	C =	0.25
Select NCRS Soil type:	С			
Wooded Area:	51.94	acre	C =	0.25
Select NCRS Soil type:	С			
Impervious Area:	7.01	acre	C =	0.9
Greenbelt Area:	118.15	acre	C =	0.25
Total Area (A):	125.16	acre		
Weighted Coefficient of Runof	f (C):	0.2	9	
Rainfall Intensity				
Flood Control Time of Concen	tration. Tc =	22.4	0 min	

Rainfall Intensity		
Time of Concentration (T <sub>C</sub> )	22.40	min
Since 15 <tc<60, equation<="" intensity="" td="" use=""><td>22.40</td><td>111111</td></tc<60,>	22.40	111111
11 = 30.2 /[ (T + 9.17)^.81]	1 8/	in/hr
11 - 30.27[ (1 + 9.17) .01]	1.04	111/111
I10 = 63/[(12.33 + T)^0.84]	3 20	in/hr
1100 = 101/[(12.33 + T)^0.84]		in/hr
100 10 11(12:00 1) 0:01]	0.10	
CPVC: Channel Protection Volume Control Vo	lume	
Vcpvc = (3630)CA	131,756	cf
, , ,	•	
CPRC: Channel Protection Rate Control Volum	ne: Extended l	Detention
VED= (6897)CA	250,336	cf
CPRC Allowable Outlet Rate		
$Q_{VED} = V_{ED} / (48*60*60)$	1.45	cfs
Water Quality Control		
Forebay Volume = (545)CA	19,782	cf
Forebay Release Rate: QVF = VF/(24*60*60)	0.229	cfs
100-Year Allowable Outlet Rate		
Since A>100 Ac, Qvrr = 0.15 cfs/ac		
Q <sub>VRR</sub> =	0.15	cfs/ac
100-Year Peak Allowable Discharge		
$Q_{100P} = Q_{VRR}(A)$	18.77	cfs
100-Year Runoff Volume		
V100R = (18,900)CA	686,002	cf
100-Year Peak Inflow		
$Q_{100IN} = C(I_{100})A$	186.20	cfs
Storage Curve Factor (Vs/Vr)		
$R = 0.206-0.15 \times In(Q100P/Q100IN)$	0.550	
100-Year Storage Volume		
Vs = R(V100R)	377,301	cf
Infiltration will be provided. CPVC can be dec	ducted:	
V100 = Vs-Vcpvc	245,545	cf
V <sub>flood</sub> must be larger or equal to V <sub>ED</sub> :		
Is V <sub>100</sub> >= V <sub>ED</sub> ?	No	





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CLIENT

JR MILITELLO
REALTY

268 MAIN STREET
SUITE 300
BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE

DOWNS AT

PLYMOUTH

TOWNSHIP

FIVE MILE AND RIDGE ROAD

PLYMOUTH, MI

REVISIONS

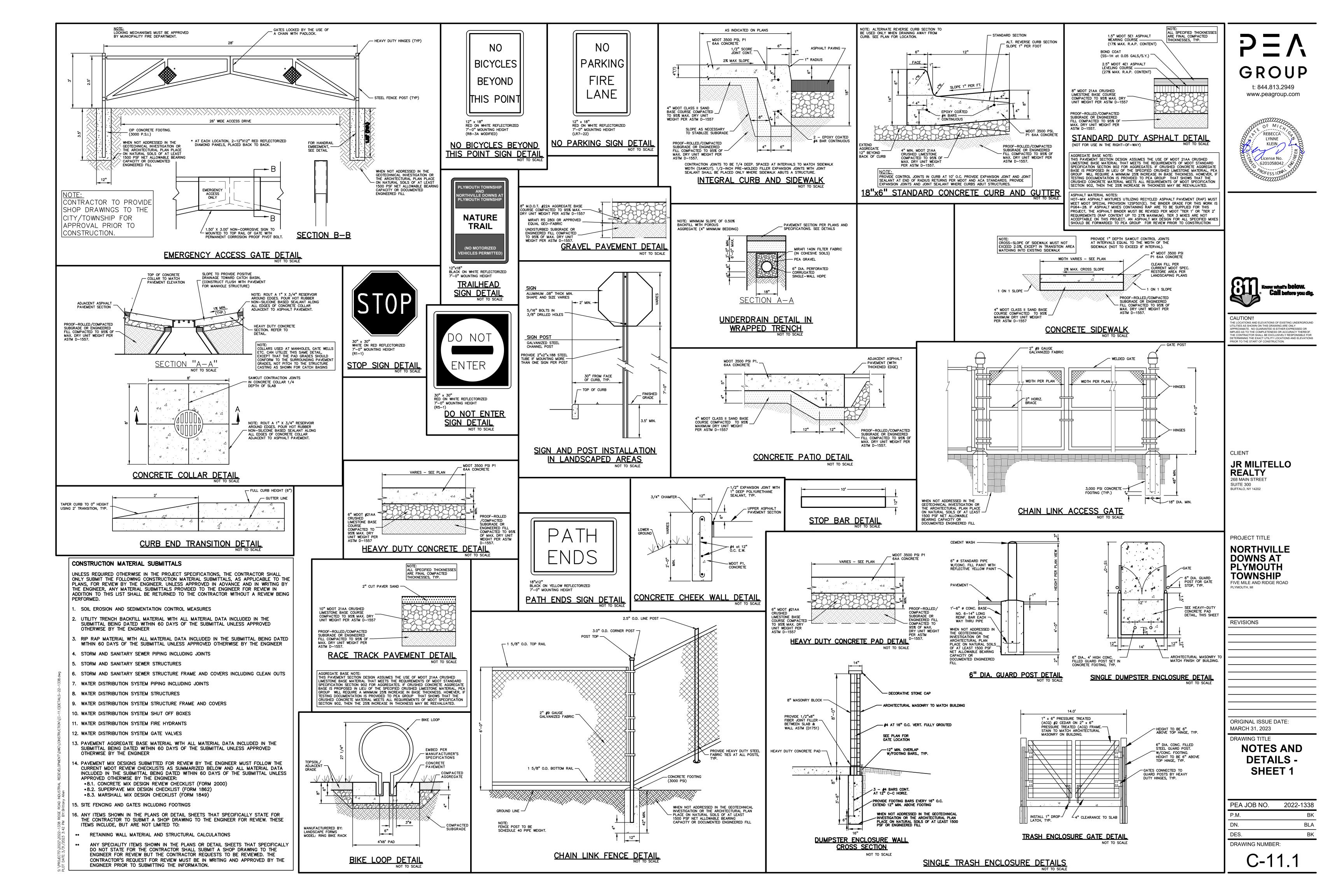
ORIGINAL ISSUE DATE:
MARCH 31, 2023

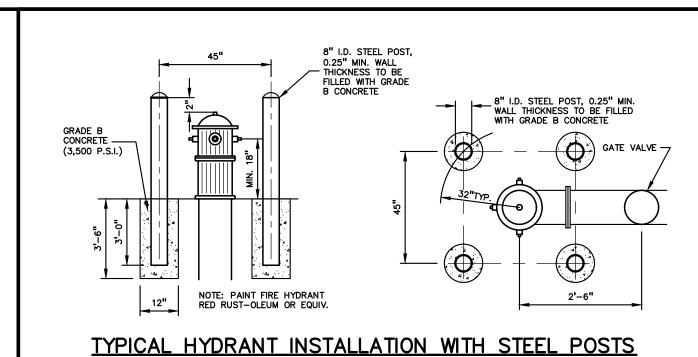
DRAWING TITLE

STORM CALCULATIONS

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	BK
DRAWING NUMBER:	

C-10.2





#### **GENERAL BARRIER FREE NOTES:**

15. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS.

THE FOLLOWING NOTES PROVIDE AN OUTLINE OF SOME OF THE REQUIREMENTS CONTAINED WITHIN THE "STANDARDS FOR ACCESSIBLE DESIGN - AMERICANS WITH DISABILITIES ACT 2010", AND "ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES", ICC/ANSI A117.1-2009. THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE REQUIREMENTS PRESENTED WITHIN THESE DOCUMENTS, WHICH ARE AVAILABLE IN FULL UPON REQUEST.

- AN ACCESSIBLE ROUTE CONSISTS OF WALK SURFACES, CURB RAMPS AND RAMPS. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES, ACCESSIBLE PASSENGER LOADING ZONES,
- PUBLIC STREETS AND SIDEWALKS, AND PUBLIC TRANSPORTATION STOPS TO THE BUILDING OR FACILITY ENTRANCE THEY SERVE.
- THE RUNNING SLOPE OF ALL WALKING SURFACES SHALL NOT EXCEED 5% (1:20) AND THE CROSS-SLOPE SHALL NOT EXCEED 2% (1:48). WALKING SURFACES MUST BE LEVEL WITH PERMITTED VERTICAL CHANGES IN LEVEL NOT TO EXCEED 1/4", OR BEVELED CHANGES IN LEVEL NOT TO EXCEED 1/2". REFER TO DETAIL DET-8 THIS SHEET. ANY CHANGE IN LEVEL GREATER
- THAN 1/2" MUST BE RAMPED. 4. TURNING SPACES ALONG ACCESSIBLE ROUTES MUST BE AT LEAST 5 FEET WIDE IN ALL DIRECTIONS AND NOT EXCEED 2% SLOPE (1:48) IN ANY DIRECTION.
- ACCESSIBLE ROUTES WILL BE DESIGNED TO BE A MINIMUM OF 5 FEET WIDE. THE MINIMUM CLEAR WIDTH IS 3 FEET.
- RAMPS ALONG ACCESSIBLE ROUTES WILL HAVE A RUNNING SLOPE GREATER THAN 5% (1:20) AND LESS THAN 8.3% (1:12). THE CROSS-SLOPE OF RAMP RUNS SHALL NOT EXCEED 2% (1:48)

14. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.

WOODEN BOARDWALK DETAILS

- TWO 3/8" DIA. RODS - CONTINUOUS

**CONCRETE PARKING BUMPER** 

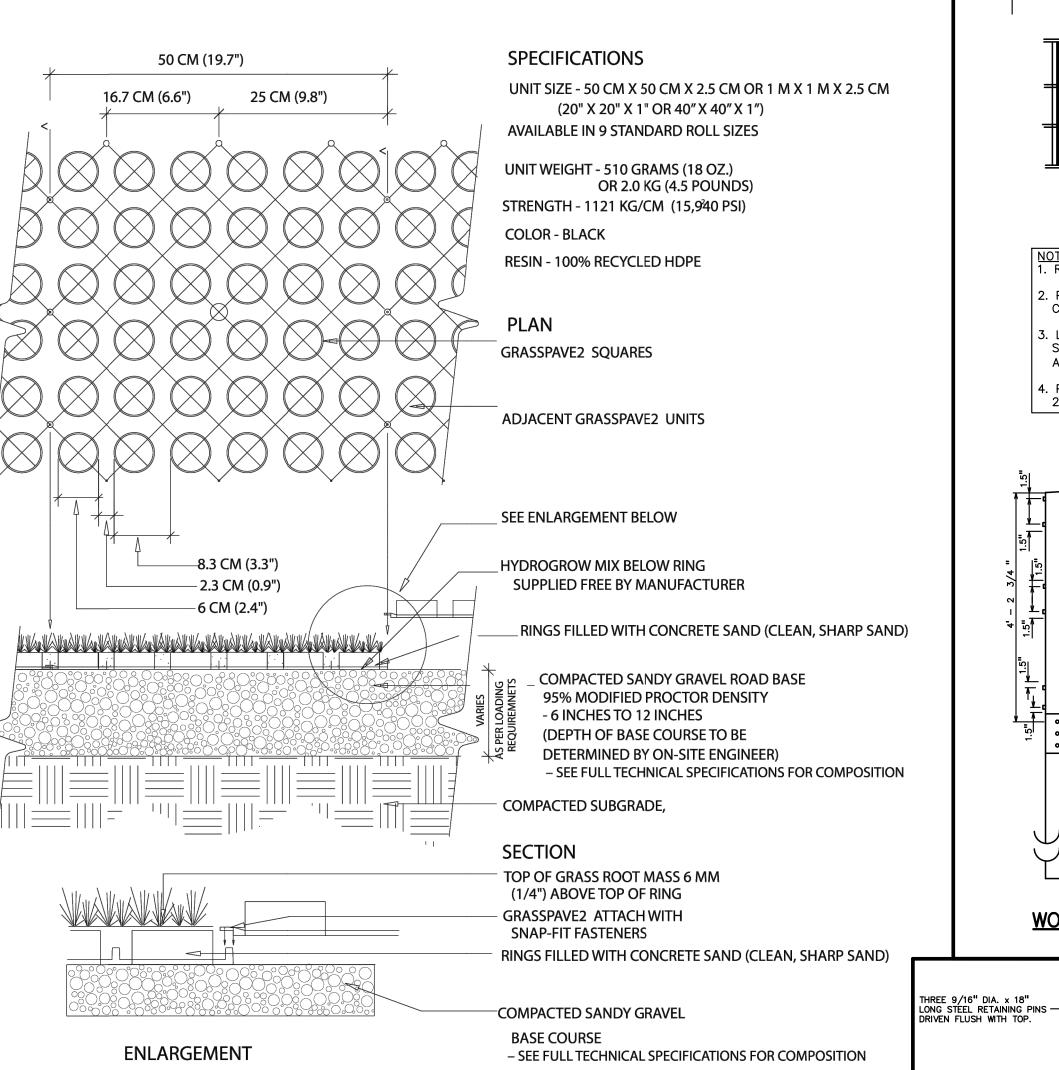
- ENTRAINED PRECÁS

- THE MINIMUM CLEAR WIDTH OF ANY RAMP IS 36 INCHES. THE MAXIMUM RISE FOR ANY RAMP (NOT INCLUDING CURB RAMPS) SHALL NOT EXCEED 30 INCHES. LANDINGS ARE REQUIRED AT THE TOP AND BOTTOM OF EACH RAMP. LANDINGS SHALL HAVE A CROSS-SLOPE NOT EXCEEDING 2% (1:48), SHALL BE 5 FEET LONG AND AT LEAST AS WIDE AS THE RAMP CLEAR WIDTH. IF THERE IS A CHANGE OF DIRECTION AT A LANDING, THEN THE LANDING MUST BE AT LEAST 5 FEET WIDE AND 5 FEET LONG.
- 10. HANDRAILS ARE REQUIRED FOR ANY RAMP (NOT INCLUDING CURB RAMPS) WITH A RISE GREATER THAN 6 INCHES. ALL HANDRAILS ARE REQUIRED TO HAVE EDGE PROTECTION UNLESS ADJOINING ANOTHER ACCESS POINT OR IF THE VERTICAL DROP-OFF AT THE EDGE OF THE RAMP DOES NOT EXCEED 1/2" IN 10 FEET. EDGE PROTECTION CAN BE PROVIDED BY MEANS OF A 4" MIN. CURB OR BARRIER.
- 11. CURB RAMPS ALONG ACCESSIBLE ROUTES SHALL NOT RISE MORE THAN 6 INCHES, NOR BE STEEPER THAN 8.3% (1:12). APPROACHING SLOPES TO THE RAMP CANNOT EXCEED 5%, WHICH INCLUDES SIDEWALKS, PAVEMENT, GUTTERS ETC.
- 12. IF CURB RAMP SIDES ARE FLARED, THE FLARES SHALL NOT BE STEEPER THAN 10% (1:10). 13. LANDINGS ARE REQUIRED AT THE TOP OF ALL CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE A MINIMUM OF 36" AND WILL BE AS WIDE AS THE CURB RAMP.
- 16. WHERE DETECTABLE WARNING IS REQUIRED AT CURB RAMPS, THE DETECTABLE WARNING SHALL BE 24" MINIMUM IN DEPTH AND SHALL EXTEND THE FULL WIDTH OF THE RAMP. THE DETECTABLE WARNING SHALL BE LOCATED SO THE EDGE NEAREST THE CURB IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE.
- 17. ACCESSIBLE PARKING SPACES ON SITE SHALL BE PROVIDED AS REQUIRED IN SECTION 502 OF THE A.D.A. IF THE SITE HAS MORE THAN ONE PARKING FACILITY, EACH FACILITY IS REQUIRED TO MEET THESE REQUIREMENTS SEPARATELY. THE REQUIRED NUMBER OF SPACES SHALL BE BASED ON THE TOTAL NUMBER OF PARKING SPACES IN EACH PARKING FACILITY ON SITE.
- 18. FOR EVERY SIX OR FRACTION OF SIX ACCESSIBLE PARKING SPACES, ONE VAN ACCESSIBLE SPACE SHALL BE PROVIDED.

  19. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE FROM PARKING TO A BUILDING ENTRANCE. IF THERE IS MORE THAN ONE ACCESSIBLE ENTRANCE, PARKING SHALL BE DISPERSED ALONG THE
- SHORTEST ACCESSIBLE ROUTE TO THE ACCESSIBLE ENTRANCES. 20. BARRIER FREE CAR PARKING SPACES SHALL BE A MINIMUM OF 8 FEET WIDE WITH AN ACCESS AISLE 5 FEET WIDE MINIMUM. VAN ACCESSIBLE PARKING SPACES SHALL BE AT LEAST 11 FEET WIDE WITH A 5' WIDE ACCESS AISLE. VAN
- ACCESSIBLE SPACES ARE ALSO ACCEPTABLE WITH AN 8 FOOT WIDTH AND 8 FOOT WIDE ACCESS AISLE. THE ACCESS AISLE IN ALL CASES MUST EXTEND THE FULL LENGTH OF THE PARKING SPACE. SURFACE SLOPES WITHIN THE PARKING SPACES AND AISLES SHALL NOT EXCEED 2% (1:48)
- 22. ACCESSIBLE AREAS INCLUDING PARKING SPACES, AISLES AND PATHWAYS, REQUIRE A MINIMUM VERTICAL CLEARANCE OF 98 INCHES.
- 23. ACCESSIBLE PARKING SPACES ARE REQUIRED TO BE IDENTIFIED BY SIGNS. THE SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. VAN PARKING SPACES ARE REQUIRED TO BE DESIGNATED AS "VAN ACCESSIBLE". REFER TO DETAILS ON THIS SHEET.

# TYPICAL GRASSPAVE2 DETAIL

CHOOSE THIS PRODUCT FOR REINFORCING GRASS WEARING SURFACES



NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR

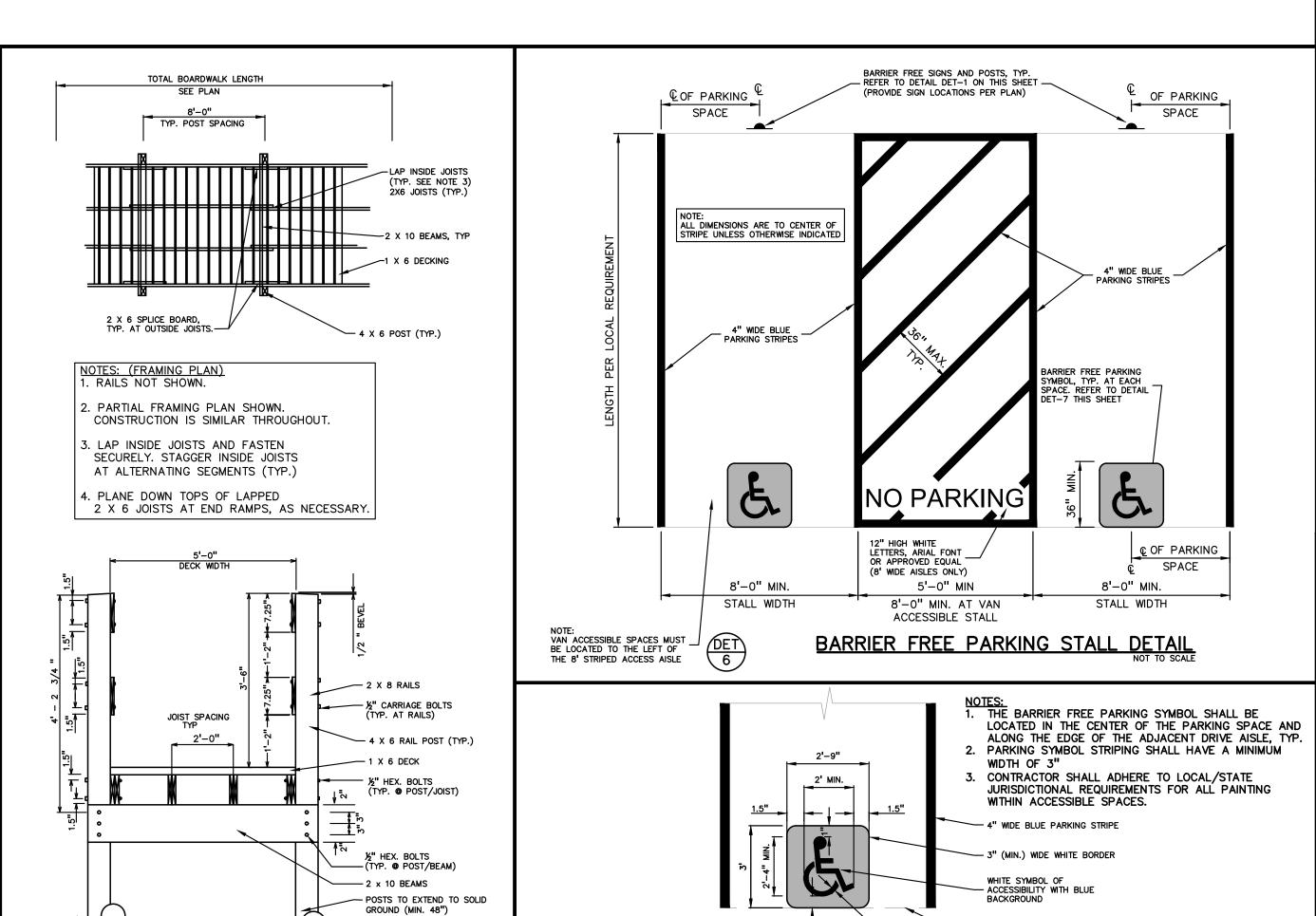
LANDSCAPE DESIGNER.

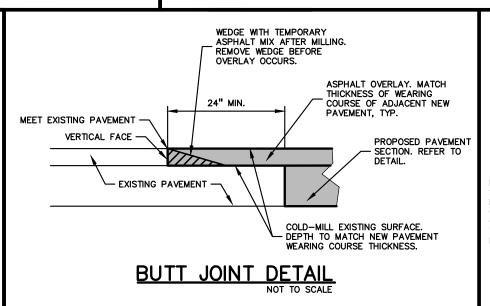
GPDET18.DWG

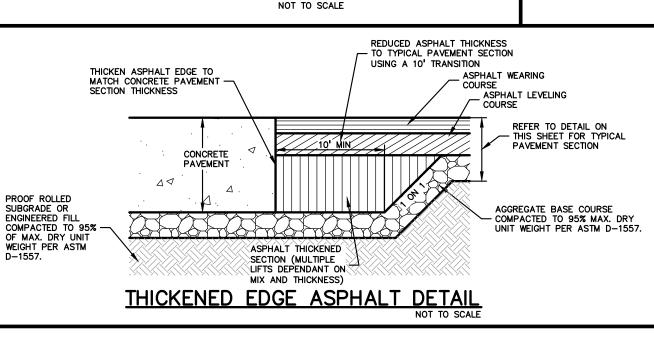
Invisible Structures, Inc.



AURORA, COLORADO 80011 800-233-1510 OR 303-233-8383 FAX: 800-233-1522 OR 303-233-8282 www.invisiblestructures.com rev. 1/18







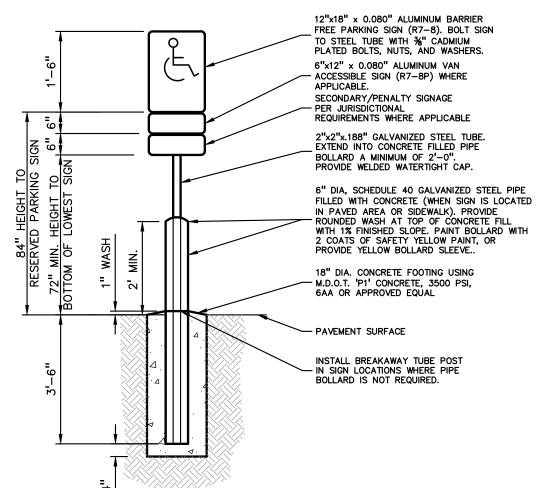
EDGE OF DRIVE LANE ADJACENT TO PARKING SPACE

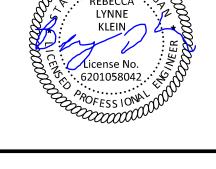
BARRIER FREE PARKING SYMBOL DETAIL

(INTERNATIONAL SYMBOL OF ACCESSIBILITY)

### **BARRIER FREE SIGN NOTES:**

- 1. ONE SIGN IS REQUIRED AT EACH BARRIER FREE PARKING SPACE. 2. ALL SIGNS SHALL COMPLY WITH THE LATEST STANDARDS OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).
- 3. WHEN TWO BARRIER FREE PARKING SPACES ARE ADJACENT AND FACING EACH OTHER, TWO SIGNS ARE REQUIRED, BUT CAN BE MOUNTED ON THE SAME POST. 4. SIGN POSTS SHALL BE 2" NOM. SQUARE 14-GAUGE GALVANIZED STEEL TUBE WITH 7/16" HOLES AT 1" CENTERS. POSTS SHALL TELESCOPE INSIDE ANCHOR POSTS A
- MINIMUM OF 12". 5. ANCHOR POSTS SHALL BE 2.25" NOM. SQUARE 12-GAUGE GALVANIZED STEEL POST,
- A MINIMUM OF 3 FEET LONG. 6. IF THESE NOTES AND DETAILS CONFLICT WITH LOCAL CODES AND ORDINANCES, THE
- STRICTER REQUIREMENT SHOULD BE USED.
- 7. ALTERNATE MATERIALS MAY BE USED IF IN COMPLIANCE WITH A.D.A. GUIDELINES AND LOCAL REQUIREMENTS.





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PRIOR TO THE START OF CONSTRUCTION.

JR MILITELLO

**REALTY** 

BUFFALO, NY 14202

SUITE 300

68 MAIN STREET

ONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATION

CAUTION!!

BARRIER FREE SIGN AND POST DETAIL

**RESERVED** 

**PARKING** 

ONLY

12" x 18" (R7-8) GREEN BORDER AND LEGEND WHITE SYMBOL, BLUE BACKGROUND. REFLECTORIZED

BARRIER FREE

**RESERVED PARKING** 12" x 18" (R7-8) GREEN BORDER AND WHITE SYMBOL, BLUE BACKGROUND. REFLECTORIZED MAY ONLY BE USED AT ONLY 6" x 12" (R7-8P) GREEN BORDER AND ACCESSIBL REFLECTORIZE

1' WIDE SPACES LOCATED 5' WIDE AISLE, OR 8' WIDE SPACES LOCATED TO THE LEFT OF 8' WIDE AISLES PARKING SIGN DETAIL

PARKING SIGN DETAIL

1.5" MDOT 36A ASPHALT (15% MAXIMUM R.A.P. CONTENT) 1.5" MDOT 13A ASPHALT LEVELING COURSE ——— (30% MAXIMUM R.A.P. CONTENT) CLEAN FILL PER CURRENT - MDOT SPEC. RESTORE PER LANDSCAPING PLAN. - 1 ON 1 SLOPE PROOF-ROLLED/COMPACTED SUBGRADE OR ENGINEERED

FILL COMPACTED TO 95% OF
MAX. DRY UNIT WEIGHT PER
ASTM D-1557. 4" MDOT 21AA CRUSHED LIMESTONE BASE COURSE COMPACTED TO 95% MAX. DRY UNIT WEIGHT PER ASTM D-1557

ASPHALT BIKE PATH DETAIL

AGGREGATE BASE NOTE:
THIS PAVEMENT SECTION DESIGN ASSUMES THE USE OF MDOT 21AA CRUSHED LIMESTONE BASE MATERIAL THAT MEETS THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION SECTION 902 FOR AGGREGATES. IF CRUSHED CONCRETE AGGREGATE BASE IS PROPOSED IN LIEU OF THE SPECIFIED CRUSHED LIMESTONE MATERIAL, PEA GROUP WILL REQUIRE A MINIMUM 25% INCREASE IN BASE THICKNESS. HOWEVER, IF TESTING DOCUMENTATION IS PROVIDED TO PEA GROUP THAT SHOWS THAT THE CRUSHED CONCRETE MATERIAL MEETS ALL REQUIREMENTS OF MDOT SPECIFICATION SECTION 902, THEN THE 25% INCREASE IN THICKNESS MAY BE REEVALUATED. HOT-MIX ASPHALT MIXTURES UTILIZING RECYCLED ASPHALT PAVEMENT (RAP) MUST MEET MDOT SPECIAL PROVISION 12SP501(E). THE BINDER GRADE FOR THIS WORK IS PG58-22. IF ASPHALT MIXES CONTAINING RAP ARE TO BE SUPPLIED FOR THIS PROJECT, THE ASPHALT BINDER MUST BE REVISED PER MDOT 'TIER 1' OR 'TIER 2 REQUIREMENTS (RAP CONTENT UP TO 27% MAXIMUM). TIER 3 MIXES ARE NOT ACCEPTABLE ON THIS PROJECT. AN ASPHALT MIX DÉSIGN FOR ALL SPECIFIED MIXES SHOULD BE FORWARDED TO PEA GROUP FOR REVIEW PRIOR TO CONSTRUCTION

> 2'-7" RAD. - PAINTED ARROW STRAIGHT TURN TRAFFIC MARKINGS SHOULD BE STRIPE USING WHITE TRAFFIC PAINT UNLESS OTHERWISE NOTED ON THE PLANS.

> > PAINTED DIRECTIONAL ARROWS

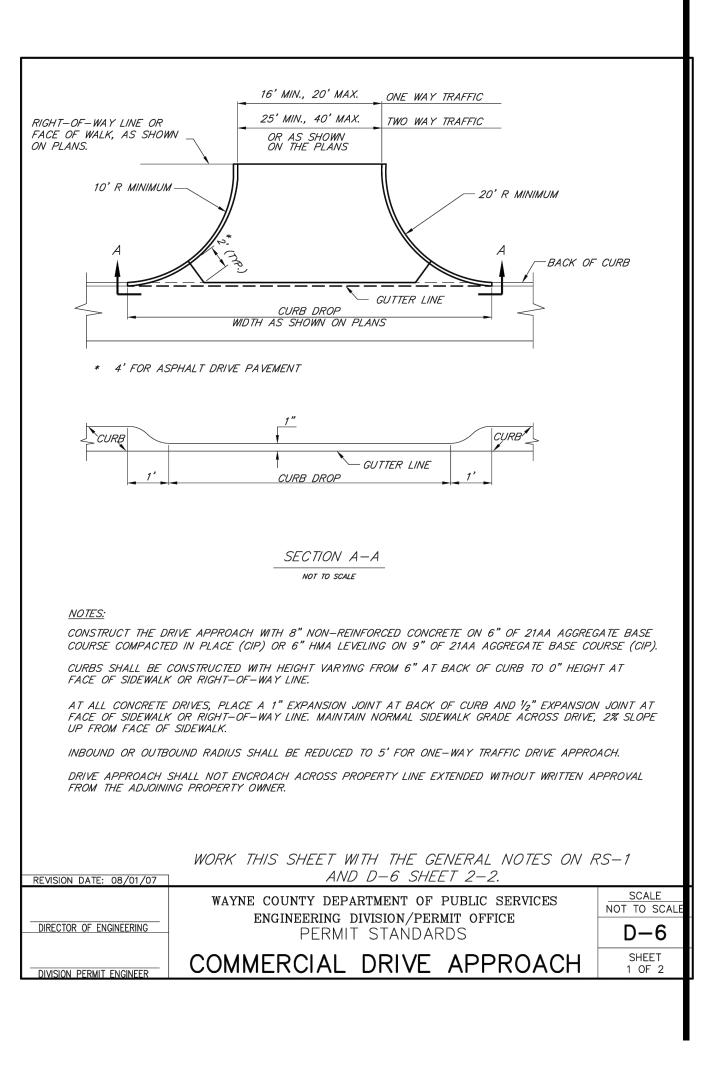
PROJECT TITLE **NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

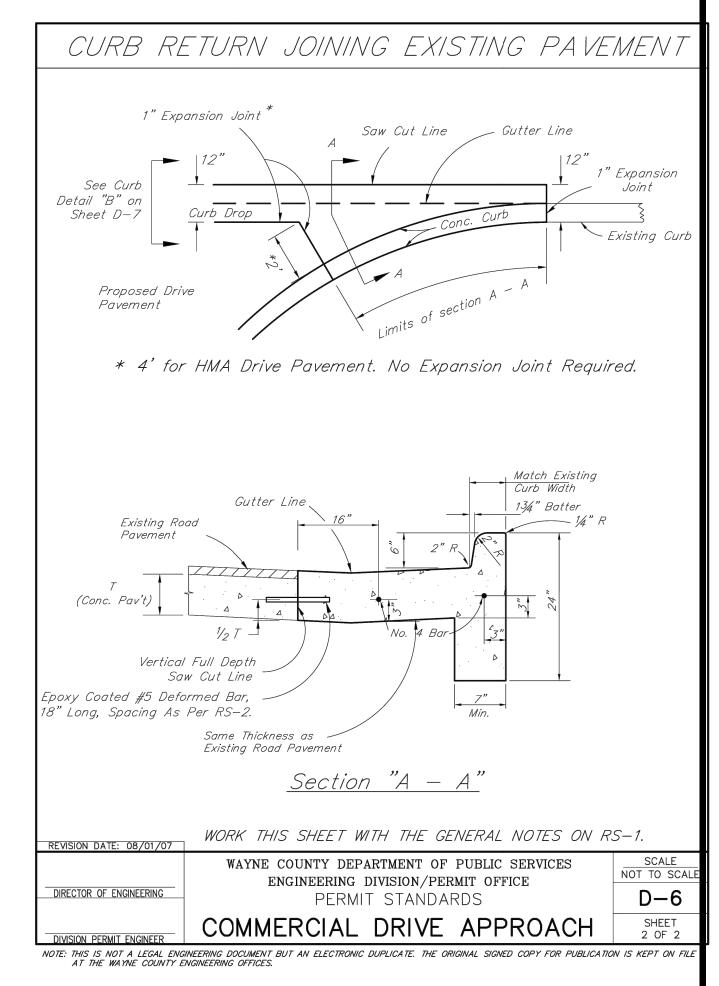
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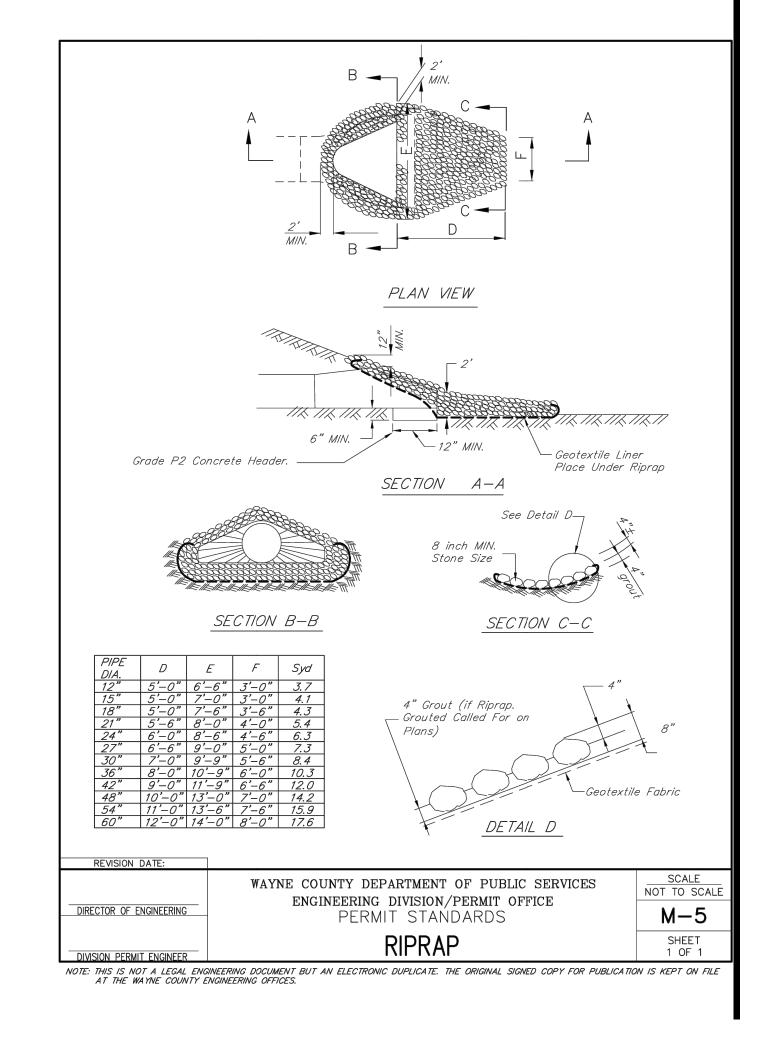
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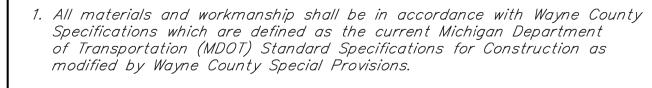
DRAWING TITLE **NOTES AND DETAILS** -SHEET 2

PEA JOB NO. 2022-1338 DN. BLA DES. BK DRAWING NUMBER:









- 2. Paving Standard Plan Details may be shown with wire fabric reinforcement. Use of reinforcement shall be required as called for on the plans.
- 3. A Transverse End of Pour Joint, Symbol (H), shall be constructed when there is an interruption in concrete paving for more than ½ hour. Transverse End of Pour Joint, Symbol (H), shall be constructed in accordance with current MDOT Standard Plan, R-39 series (Reinforced Concrete Pavement) and R-39P series (Plain Concrete Pavement). This note applies to both concrete base and finished concrete pavement.
- 4. When it is anticipated that construction traffic will be using the pavement, endings will be protected by means of a temporary concrete header as shown on RS-4.
- 5. The Expansion Joint Foam Rod shall be a solid round heat resistant Polyurethane foam capable of withstanding the temperature of the sealant. Density of the foam shall be 2-4 Lb/Cft.
- 6. Wire Fabric Reinforcement shall lay flat when delivered to the work area. The use of spreader bars will be required for lifting bundles of
- 7. Where the lane width of the pavement differs from wire fabric reinforcement standards, special sheets of the required width may be used or standard sheets may be cut to the required size or split sheets may be added to standard sheets to obtain the required size. Side laps shall not be less than the spacing of the longitudinal wires.
- 8. The ends of the Wire Fabric Reinforcement sheets shall be fastened in at least two places at each lap to prevent horizontal and vertical displacement.
- 9. When Concrete Pavement Repairs are longer than 20 feet, Transverse Plane of Weakness Joints (WT) shall be placed in-line with existing transverse joints, working cracks, or at 15 feet maximum and 6 feet minimum spacings.
- 10. Existing concrete pavements with HMA surface requiring sawcutting for removal shall have the saw cuts extend completely thru the concrete pavement. Sawed over-cuts occurring in adjacent slab, gutter or shoulder, which will remain in place, shall be sealed.

	WA
DIRECTOR OF ENGINEERING	
DIVISION PERMIT ENGINEER	

REVISION DATE: 08/01/07

YNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS

RS-1

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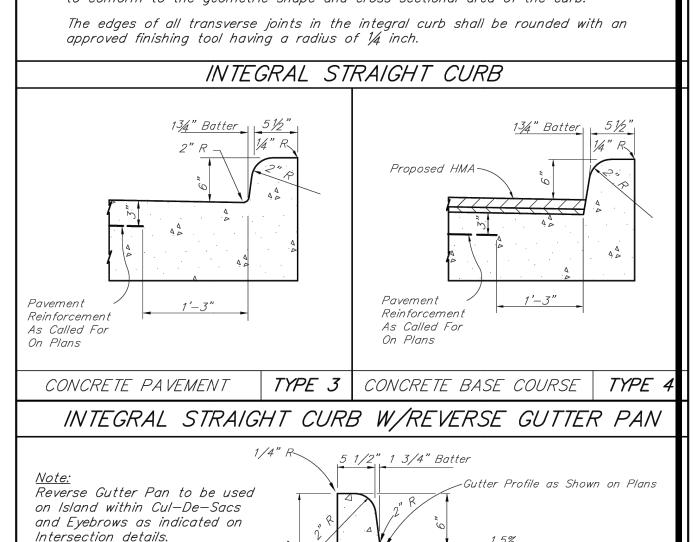
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All transverse joints in the concrete pavement shall extend entirely through the integral curb and be of the same kind and thickness as provided for the pavement. The joint material shall be pre-cut so as to conform to the geometric shape and cross sectional area of the curb, and shall be placed in contact with the filler material in the pavement.

Integral curbs, which are placed as part of a concrete base course pavement shall have transverse plane of weakness joints, formed by placing a pre-molded bituminous filler 1/4 inch thick, entirely through the curb, in exact alignment with all joints in the base course pavement. The joint material shall be pre-cut so as to conform to the geometric shape and cross sectional area of the curb.



REVISION DATE: 08/01/07

DIRECTOR OF ENGINEERING

~ A

RS-3

SHEET 1 OF 3

Work This Sheet with the General Notes on RS-1

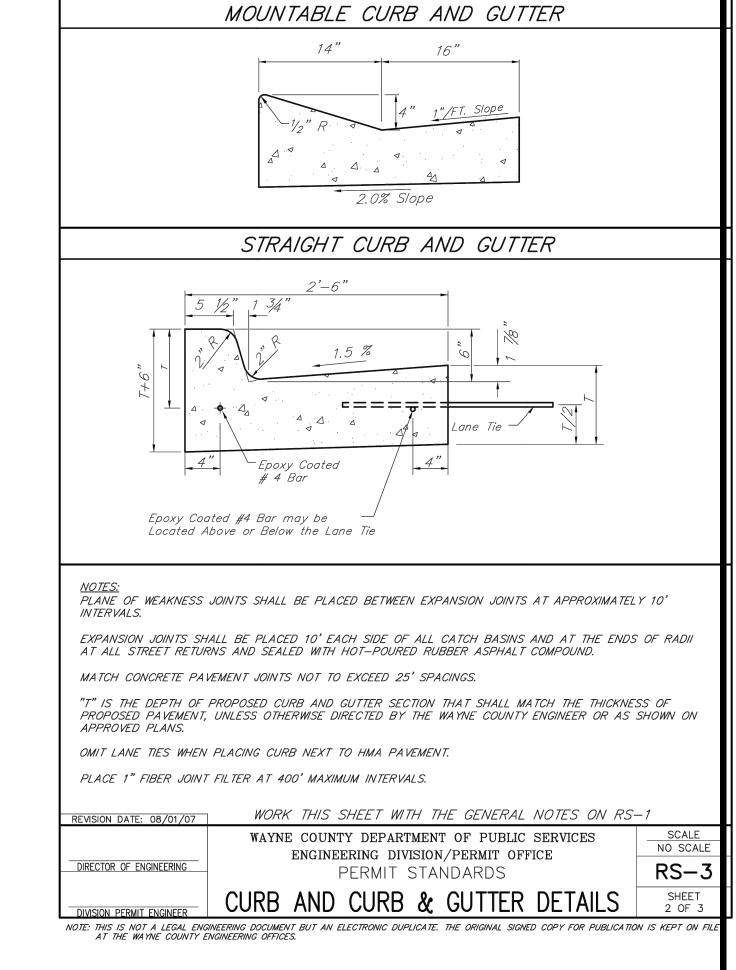
WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES

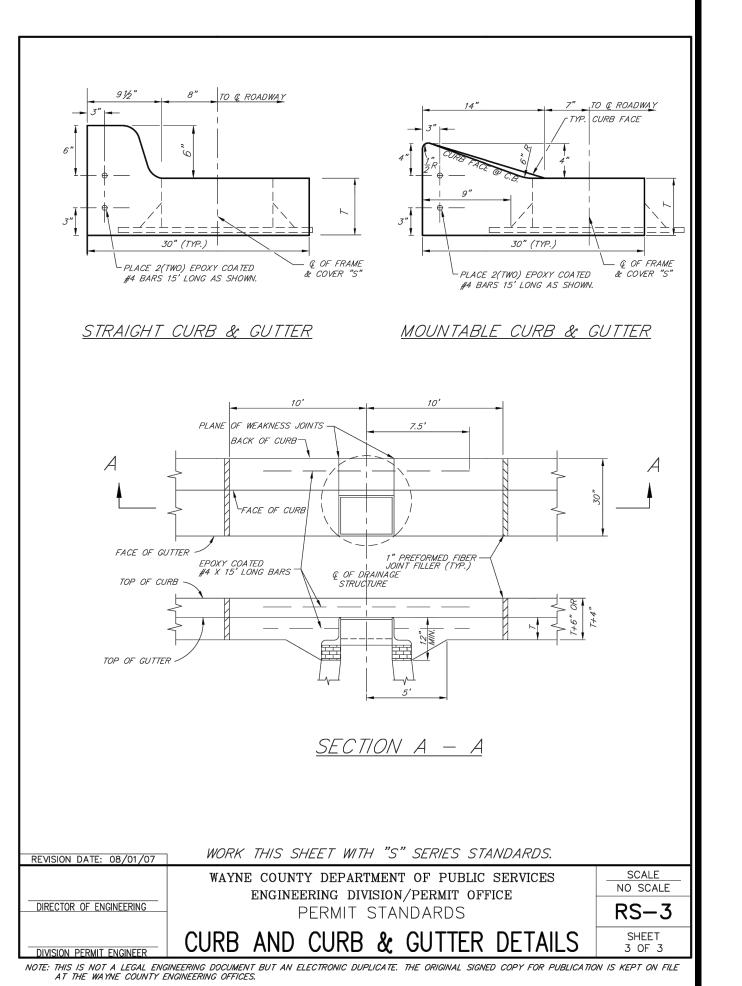
ENGINEERING DIVISION/PERMIT OFFICE

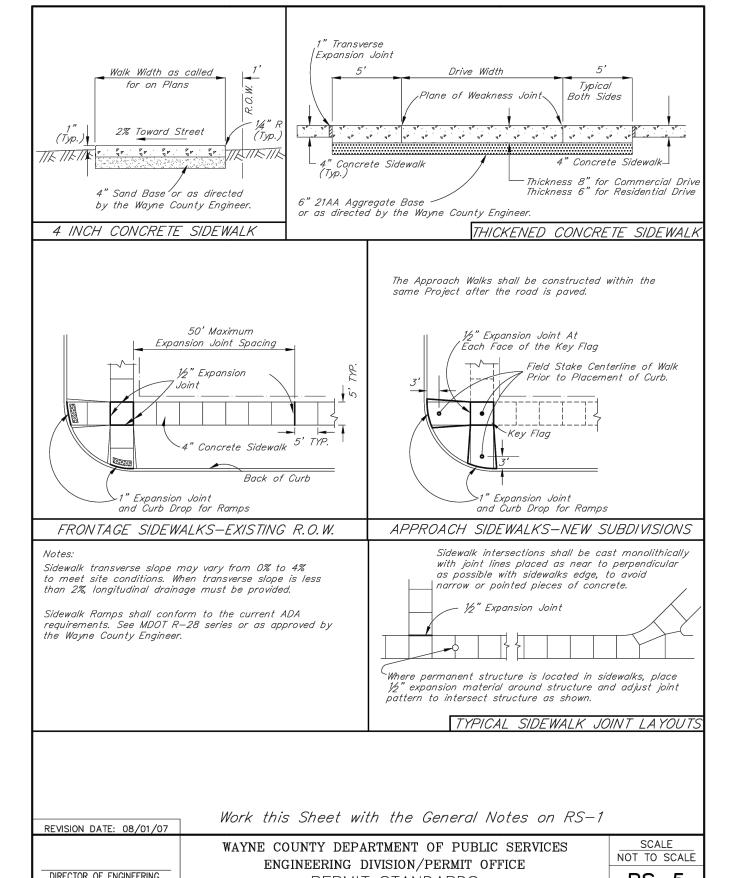
PERMIT STANDARDS

CURB AND CURB & GUTTER DETAILS

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DIRECTOR OF ENGINEERING RS-5 PERMIT STANDARDS CONCRETE SIDEWALK

CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

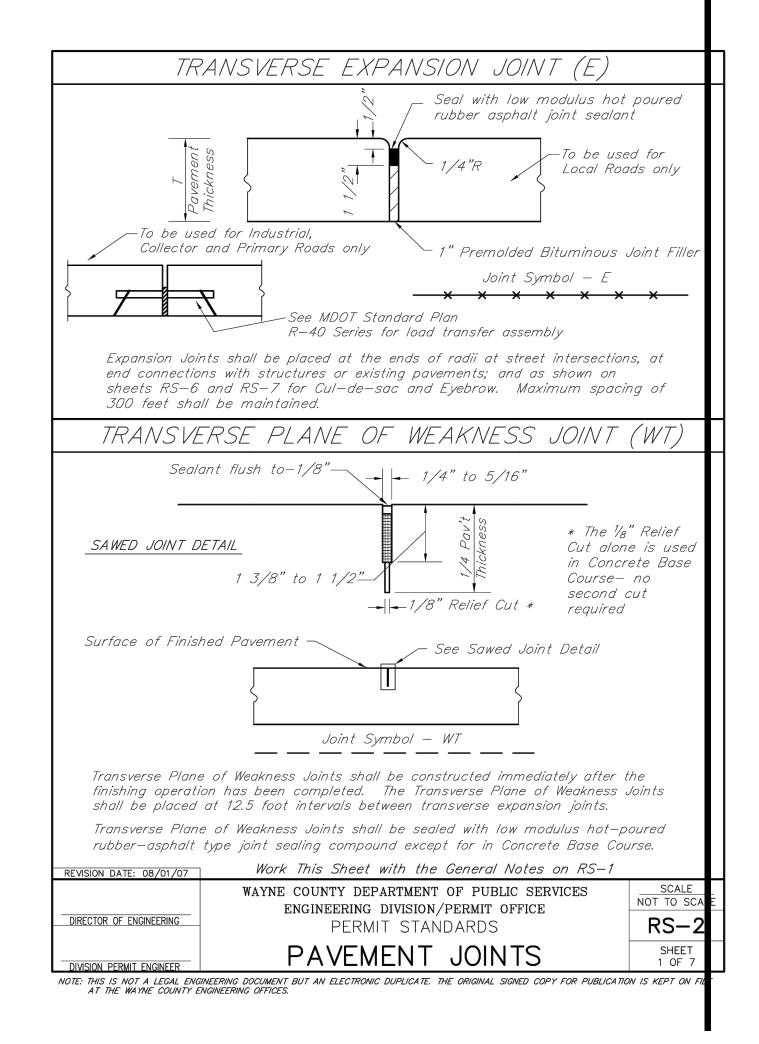
**NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

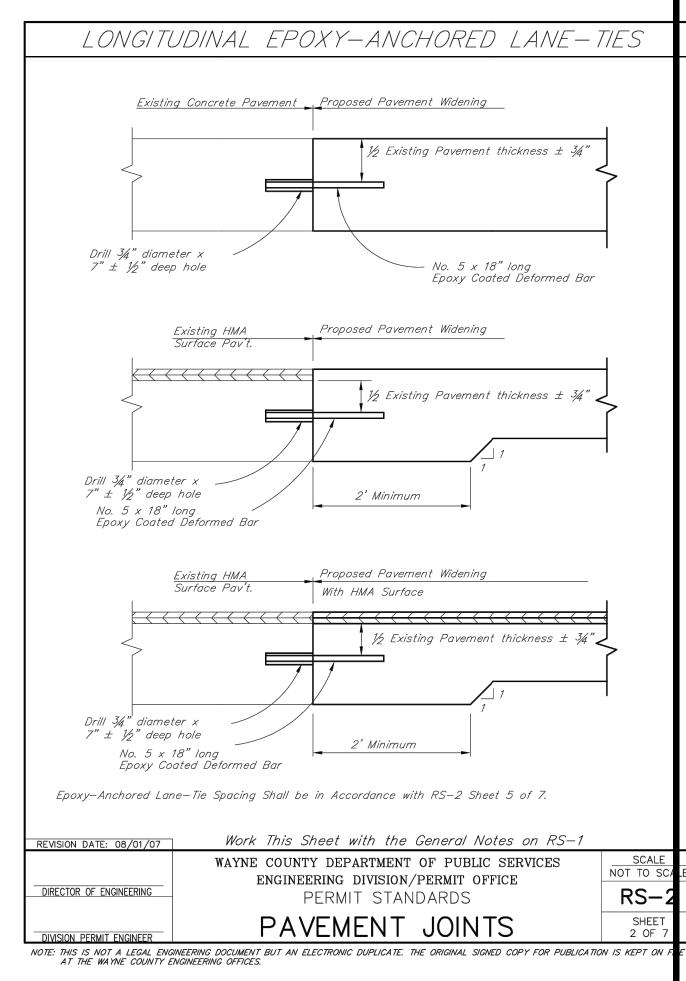
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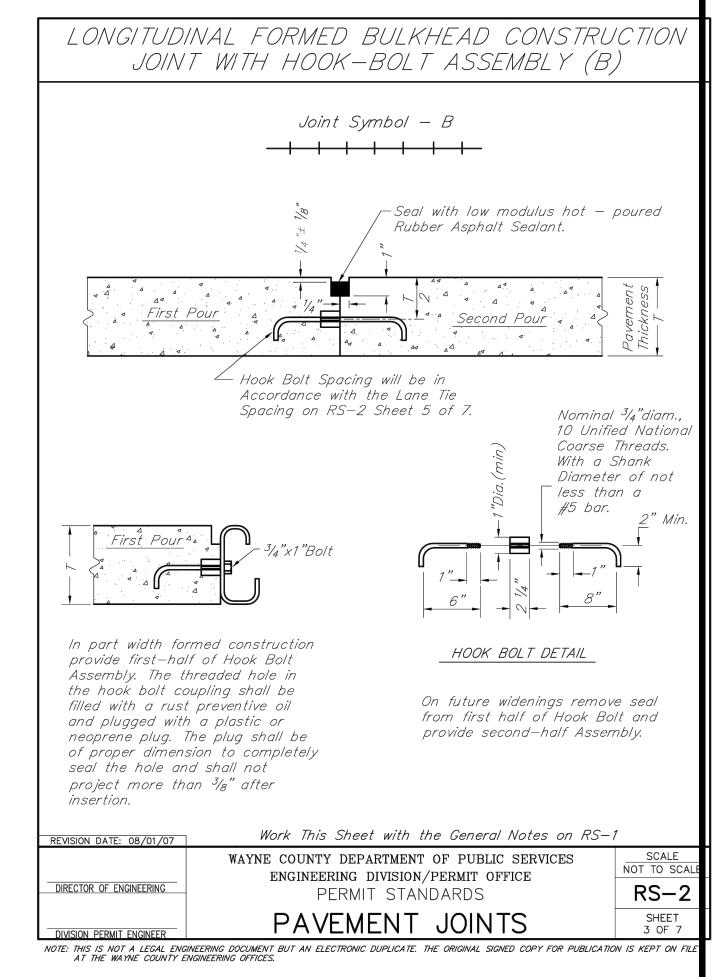
DRAWING TITLE **WAYNE COUNTY DETAILS** -SHEET 1

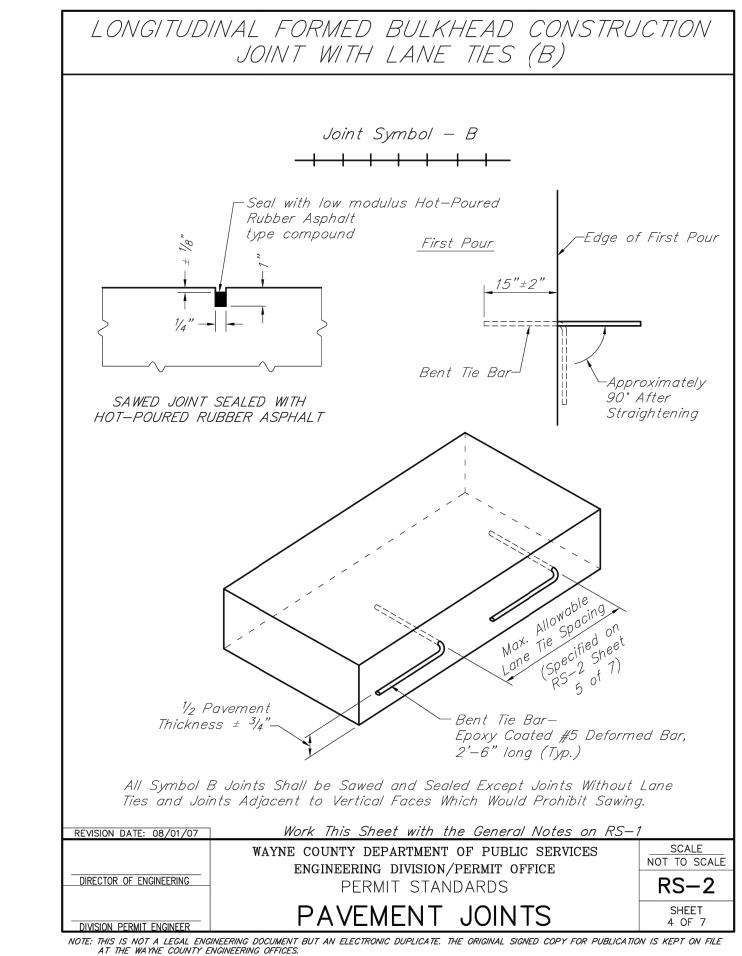
PEA JOB NO. 2022-1338 BLA DES.

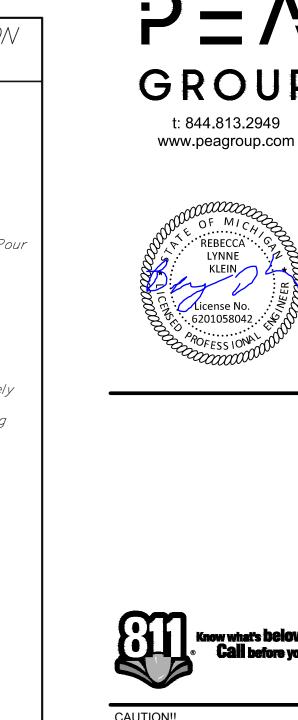
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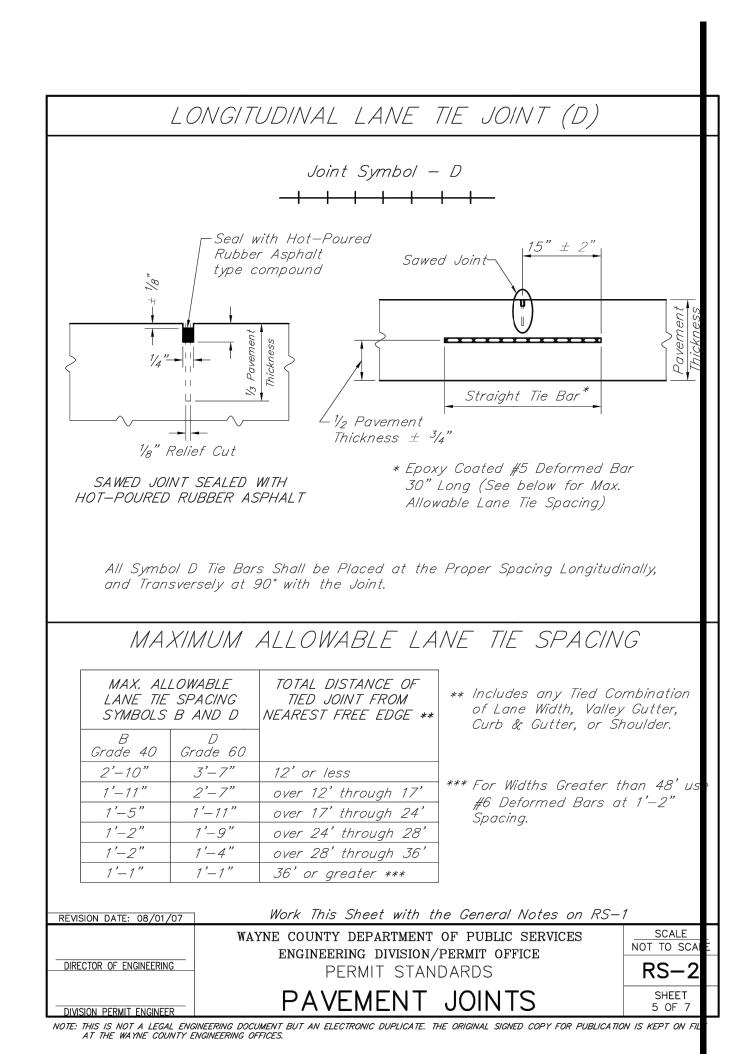


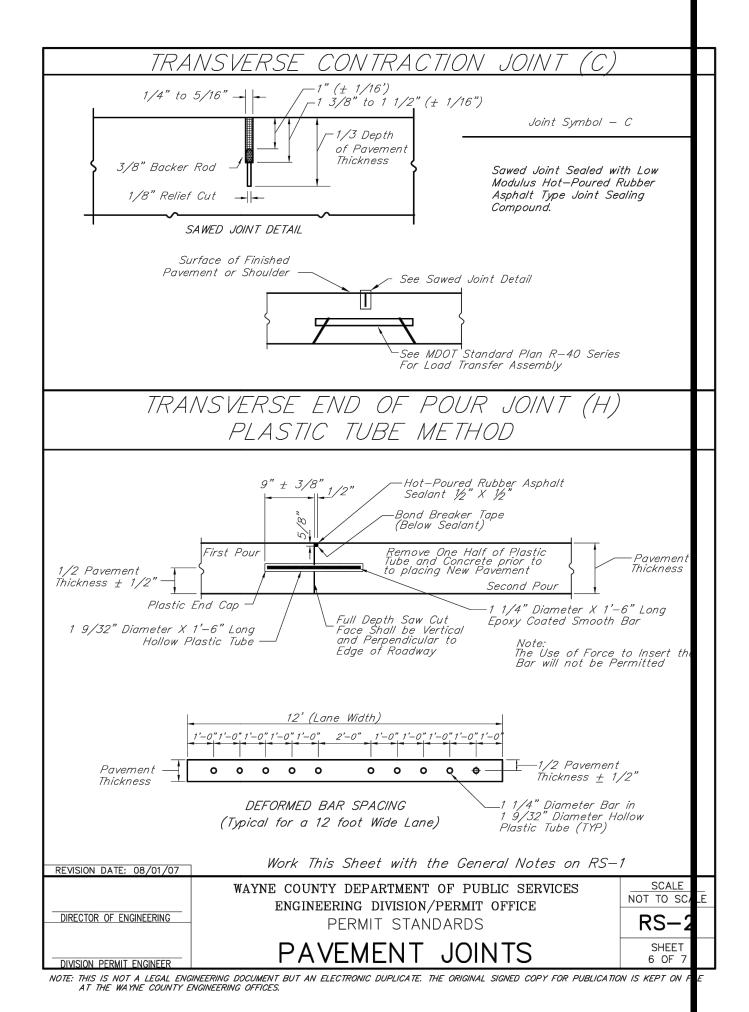


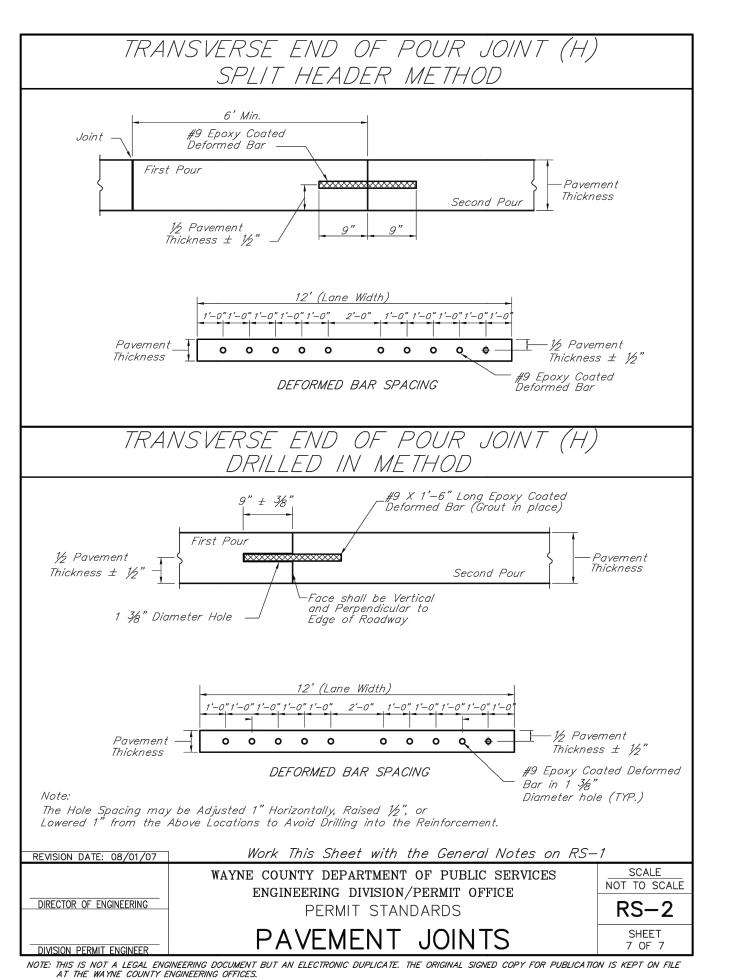












CLIENT

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REALTY

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SUITE 300
BUFFALO, NY 14202

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PROJECT TITLE

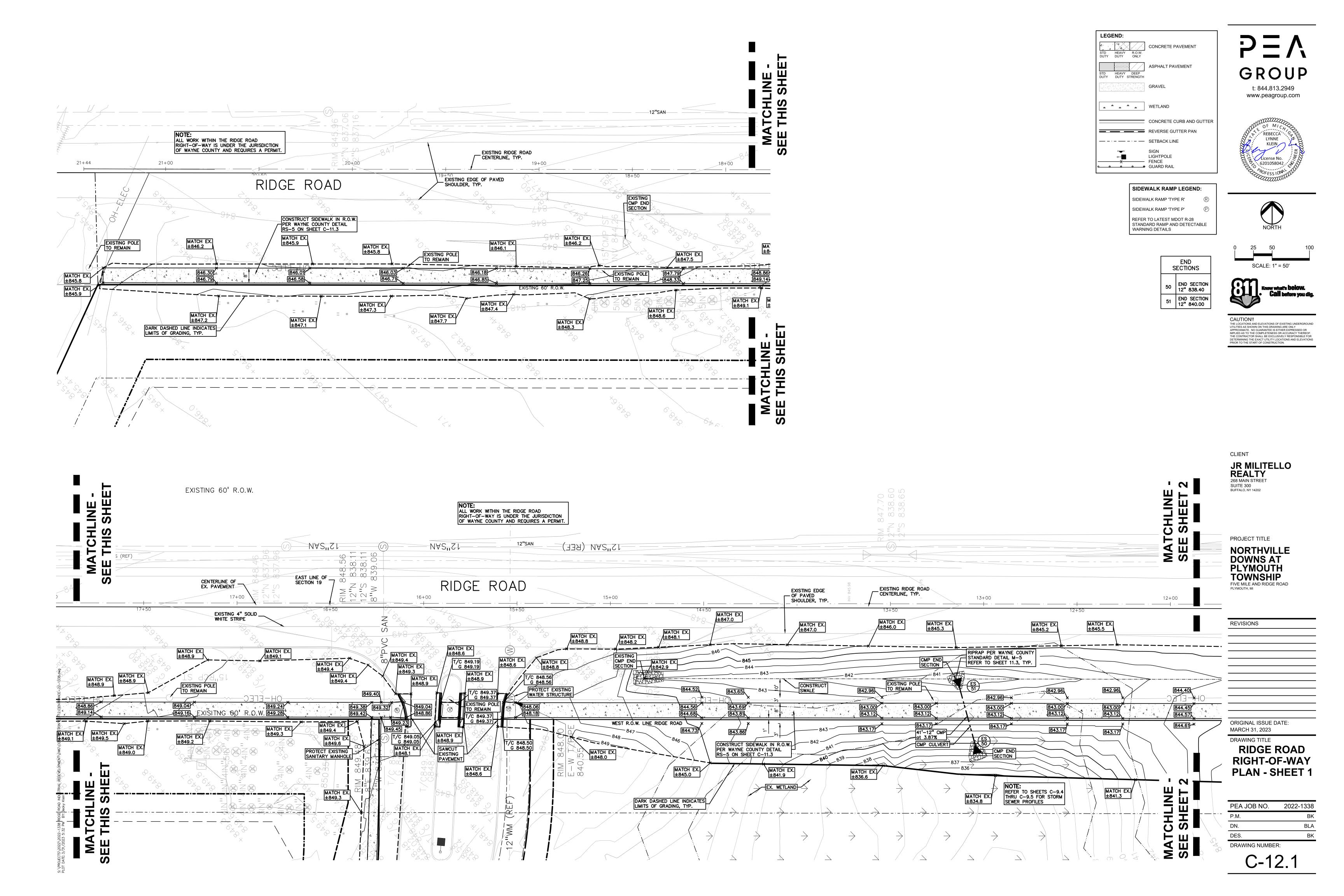
REVISIONS

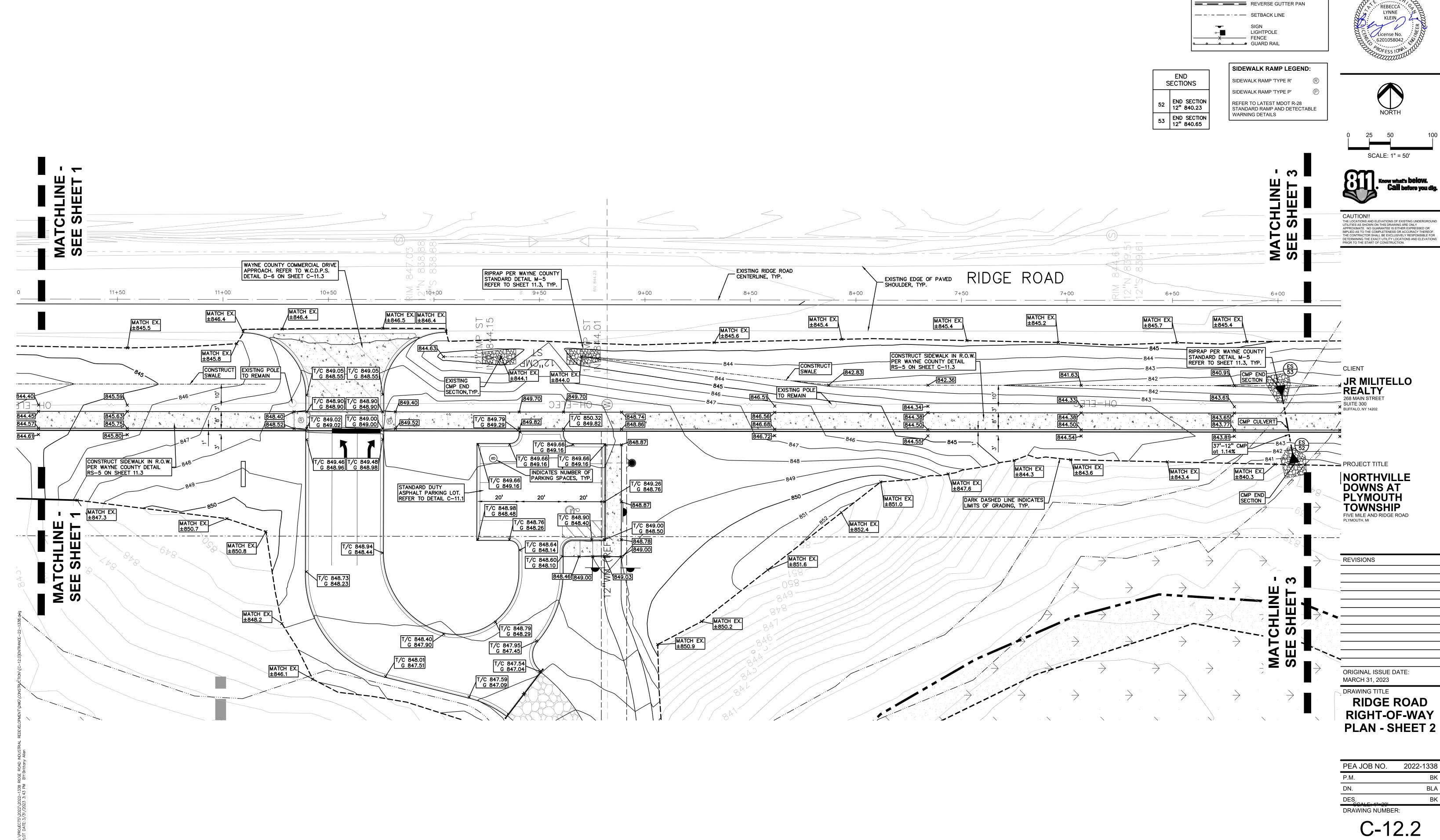
NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH. MI

RIGINAL ISSUE DATE:
IARCH 31, 2023
RAWING TITLE
VAYNE COUNTY
DETAILS -
SHEET 2
SUEE! 7

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BLA
DES.	ВК
DRAWING NUMBER:	

C-11.4





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LEGEND:

STD HEAVY R.O.W. DUTY DUTY ONLY

STD HEAVY DEEP DUTY DUTY STRENGTH

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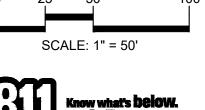
CONCRETE PAVEMENT

ASPHALT PAVEMENT

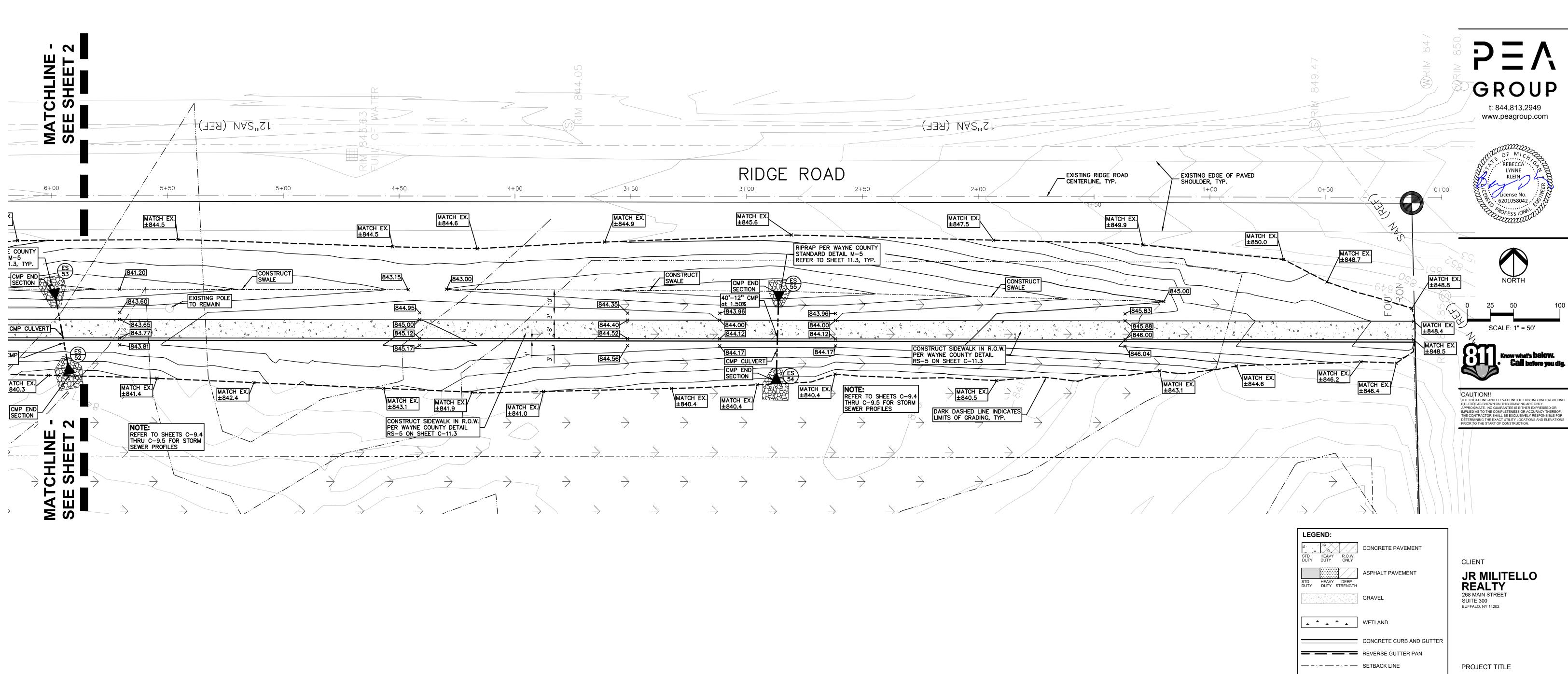
GRAVEL

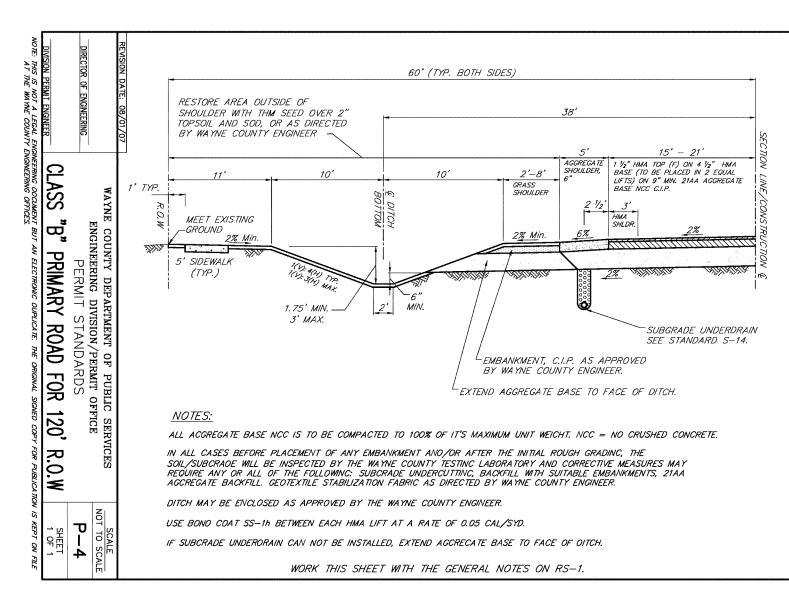
CONCRETE CURB AND GUTTER





2022-1338





**NORTHVILLE** LIGHTPOLE **---DOWNS AT** —— FENCE GUARD RAIL **PLYMOUTH** TOWNSHIP
FIVE MILE AND RIDGE ROAD
PLYMOUTH, MI LEGEND:

	END SECTIONS		SIDEWALK RAMP L
			SIDEWALK RAMP 'TYPE
	54 END SECTION 12" 840.40  55 END SECTION 12" 841.00	SIDEWALK RAMP 'TYPE	
		REFER TO LATEST MDC STANDARD RAMP AND I	
		WARNING DETAILS	
ı			

OT R-28 D DETECTABLE

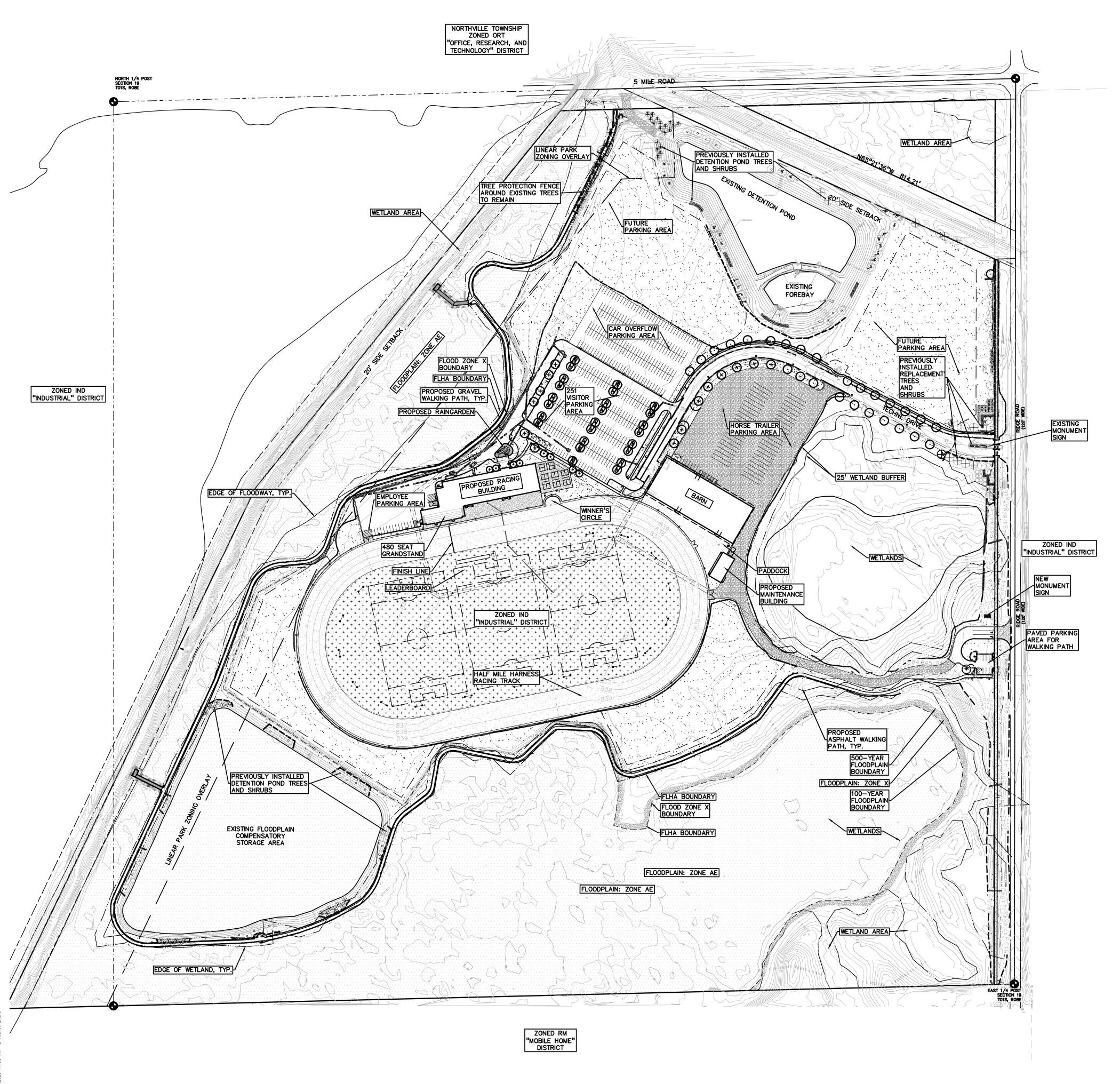
> ORIGINAL ISSUE DATE: MARCH 31, 2023

REVISIONS

DRAWING TITLE **RIDGE ROAD RIGHT-OF-WAY** 

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	ВК
DRAWING NUMBER	<u>:</u>

**PLAN - SHEET 3** 



LANDSCAPE CALCULATIONS:
PER PLYMOUTH TOWNSHIP ZONING ORDINANCE-IND INDUSTRIAL ZONE,
PROPOSED USE PLANNED UNIT DEVELOPMENT

TREE REPLACEMENT REQUIRED:

REQUIRED:
PROVIDE 1" CAL REPLACEMENT FOR EVERY 4" DBH REMOVED FOR TREES WITHIN WOODED AREAS OR INDIVIDUAL TREES 24" OR LARGER IN FAIR OR BETTER CONDITION. TREES ON THE TWPS. NOT DESIRABLE TREE LIST NIC FOR REPLACEMENT.

36 TREES REMOVED WITH 577" DBH

577" DBH REMOVED / 4 = 144.25 (50%) DEC 3"CAL OR EVG 8'HT 144.24 x 50% /3" CAL = 25, 3" DEC. OR 8' EVG.

(30%) DEC 3.5"CAL OR EVG 10'HT 144.25  $\times$  30% /3.5" CAL = 13, 3.5" DEC. OR 10' EVG.

(20%) DEC 4"CAL OR EVG 12'HT 144.25 x 20% /4" CAL = 8, 4" DEC. OR 12' EVG.

REQUIRED:

25 TREES (18, DEC 3"CAL AND 7, 8' EVG.)

13 TREES (13, 10' EVG.)

8 TREES (8, DEC 4"CAL)

PROVIDED: 26 PREVIOUSLY INSTALLED DEC.

20 PREVIOUSLY INSTALLED EVG.

STREET TREES AT RIDGE ROAD

REQUIRED:

1 DEC. TREE / 40 LF OF LENGTH OF SITE FRONTAGE

2,800 LF / 40 = 70 TREES (EXCLUDING UNIT 9
FRONTAGE ON BOTH RIDGE AND FIVE MILE ROADS)

(50%)70\*.5; DEC. 3"CAL. OR EVG. 8'HT. = 35 TREES (30%)70\*.3; DEC. 3.5"CAL. OR EVG. 10'HT. = 21 TREES (20%)70\*.2; DEC. 4"CAL. OR EVG. 12'HT. = 14 TREES

REQUIRED:

35 TREES (21, DEC. 3" CAL. AND 14, EVG. 8' HT.)
21 TREES (1, DEC. 3.5" CAL. AND 20, EVG. 10' HT.)
14 TREES (8 DEC. 4" CAL. AND 6, EVG. 12' HT.)
PROVIDED: 28 PREVIOUSLY INSTALLED DEC.
40 PREVIOUSLY INSTALLED EVG.
NEW PROPOSED: 1 DEC, 0 EVG,

DETENTION POND PLANTINGS

55 DECIDUOUS TREES. 20 EVG. TREES. AND 100 SHRUBS PER CITY'S REQUEST AT POND

PROVIDED: 55 PREVIOUSLY INSTALLED DEC.
20 PREVIOUSLY INSTALLED EVG.
100 PREVIOUSLY INSTALLED SHRUBS.
NEW PROPOSED: 0 DEC, 0 EVG, 0 SHRUBS

PROPOSED NEW INTERIOR STREET TREES AT PAVED PORTION OF TECHNE DRIVE, AT APPROXIMATELY 1 TREE PER 50 LF 1291 LF / 50 = 25.8 TREES

PROVIDED: 26 PROPOSED NEW STREET TREES ALONG TECHNE DRIVE

PROPOSED NEW PARKING LOT TREES AT NORTH PAVED PARKING AREA REQUIRED:

1 DEC. TREE / 80 SF OF PLANTING AREA WITHIN THE ISLAND NORTH PAVED PARKING AREA ISLANDS:

3728 SF / 80 = 46.6 TREES

PROVIDED: 47 PROPOSED NEW PARKING LOT TREES

"PREVIOUSLY INSTALLED TREES AND SHRUBS" COMPLETED IN PREVIOUS PROJECT IN 2019

TREE REMOVAL AND REPLACEMENT COMPLETED IN PREVIOUS PROJECT IN 2019

MAINTENANCE PLAN:
LAWNS SHALL BE MOWED AND TRIMMED ON A WEEKLY BASIS WITH
FALL AND SPRING CLEAN UP AND MAINTAINED TO BE DISEASE FREE.

LAWN, TREES & LANDSCAPE AREAS SHALL HAVE ACCESS TO A READILY AVAILABLE & ACCEPTABLE WATER SUPPLY UNTIL ESTABLISHED.

SEED LAWN, TREES & LANDSCAPING SHALL BE WATERED WELL UNTIL ESTABLISHED, APPROXIMATELY 1 YEAR. SPECIAL ATTENTION & EXTRA WATERING IS GIVEN TO LAWN AND PLANT MATERIAL DURING TIMES OF

DROUGHT.

LAWN & LANDSCAPE SHALL BE MAINTAINED IN A REASONABLE
HEALTHY CONDITION, FREE FROM REFUSE AND DEBRIS. UNHEALTHY
AND DEAD MATERIAL SHALL BE REPLACED WITHIN 6 MONTHS OF
DAMAGE OR DEATH OR NEXT APPROPRIATE PLANTING PERIOD.

SEASONAL APPROPRIATE PRUNING SHALL BE DONE WHEN NECESSARY FOR SAFETY OF PEDESTRIANS AND MAINTAINING VEHICULAR SIGHT LINES. TREES SHALL BE REPLACED IF DISEASED OR DEAD.

E, = PREVIOUSLY INSTALLED REPLACEMENT TREES

= RELOCATED PREVIOUSLY INSTALLED REPLACEMENT TREE (1 AT NORTH SIDE OF ENTRY AT TECHNE DR. FOR PARKING)

= PREVIOUSLY INSTALLED STREET TREES

= PROPOSED NEW STREET TREE
(1 TREE AT RIDGE ROAD, NORTH END)

SEE ENLARGED PLANS FOR TREE SPECIES AND QTY

= PROPOSED NEW INTERIOR STREET TREE AT TECHNE DR.
SEE ENLARGED PLANS FOR TREE SPECIES AND QTY

= PROPOSED NEW PARKING LOT TREES

SEE ENLARGED PLANS FOR TREE SPECIES AND QTY

= RELOCATED PREVIOUSLY INSTALLED PARKING LOT TREE
(1 AT GRAVEL PARKING AREA OFF RIDGE ROAD)

= PREVIOUSLY INSTALLED DETENTION POND TREES / SHRUBS
= RELOCATED PREVIOUSLY INSTALLED DETENTION POND TREE
(1 AT SW DETENTION AREA FOR PATH)

= IRRIGATED SOD LAWN

= NON-IRRIGATED SEED LAWN
(CONTRACTOR SHALL REPLACE ALL
DISTURBED AREAS WITH LAWN. FIELD
VERIFY LIMITS OF DISTURBANCE.)

= GRAVEL PATH (REFER TO ENGINEERING DRAWINGS)

= ATHLETIC FIELD SEED MIX SEE SHEET L-1.5 FOR SEED SPEC. INFO

= EMERGENT WETLAND SEED MIX

FOR THE EXISTING NORTH AND SOUTH DETENTION AREAS SUPPLEMENTAL PLUGS:
USE 300 PLUGS EACH EXISTING BASIN.
PLUGS TO BE SELECTED FROM THE STORMWATER LIST

SEE SHEET L-1.5 FOR SEED SPEC. INFO

SEE SHEET L-1.1 - L-1.4 FOR PROPOSED TREE TYPE AND QTY.
SEE SHEET L-1.5 FOR LANDSCAPE DETAILS AND SEED MIX INFO.

#### GENERAL PLANTING NOTES:

SEE SHEET L-1.1 AND L-1.3 SEE SHEET L-1.5 FOR PLUG INFO

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING SITE CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.

2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO

ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE MATERIAL SHALL BE NORTHERN GROWN, NO.

4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON LANDSCAPE PLAN PRIOR TO PRICING THE WORK.

. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.

6 ALL CINCLE STEM SHADE TREES TO HAVE STRAIGH

6. ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.7. ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL

LEADER; TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.

8. ALL MULTI STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES

OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE

9. ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING

ACCEPTED.

10. ALL TREES TO HAVE CLAY OR CLAY LOAM BALLS,

TREES WITH SAND BALLS WILL BE REJECTED.

1. NO MACHINERY IS TO BE USED WITHIN THE DRIP LINE OF EXISTING TREES; HAND GRADE ALL LAWN AREAS WITHIN THE DRIP LINE OF EXISTING TREES.

12. ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.

13. IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS.

14. ALL PLANTING BEDS SHALL RECEIVE 3" SHREDDED HARDWOOD BARK MULCH WITH PRE EMERGENT, SEE SPECIFICATIONS. SHREDDED PALETTE AND DYED MULCH WILL NOT BE ACCEPTED.

15. ALL LANDSCAPED AREAS SHALL RECEIVE 3" COMPACTED

16. SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY

17. FOR NON-LAWN SEED MIX AREAS, AS NOTED ON PLAN, BRUSH MOW ONCE SEASONALLY FOR INVASIVE SPECIES CONTROL.

18. CONTRACTOR SHALL NOT INSTALL PLANTS UNDER BUILDING OVERHANG AND SHALL NOTIFY LANDSCAPE ARCHITECT IF DRAWINGS CONFLICT WITH BUILDING OVERHANGS.

19. TREES SHALL NOT CONFLICT/ BLOCK PROPOSED REGULATORY/ DIRECTION SIGNAGE, MONUMENT SIGNS, ADDRESS OR LIGHT POLES. SHIFT TREES AS NECESSARY TYP.

NOTES:
LANDSCAPE AREAS SHALL BE KEPT IN A NEAT, ORDERLY AND HEALTHY GROWING CONDITION, FREE OF DEBRIS AND REFUSE.

PRUNING SHALL BE MINIMAL TO ASSURE THE PROPER MATURATION OF PLANTS.

LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC, UNDERGROUND IRRIGATION SYSTEM.

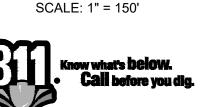
PEV.

t: 844.813.2949 www.peagroup.com





NORTH 75 150 3



CAUTION!!

THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE

DES.

OVERALL LANDSCAPE

 PLAN

 PEA JOB NO.
 2022-1338

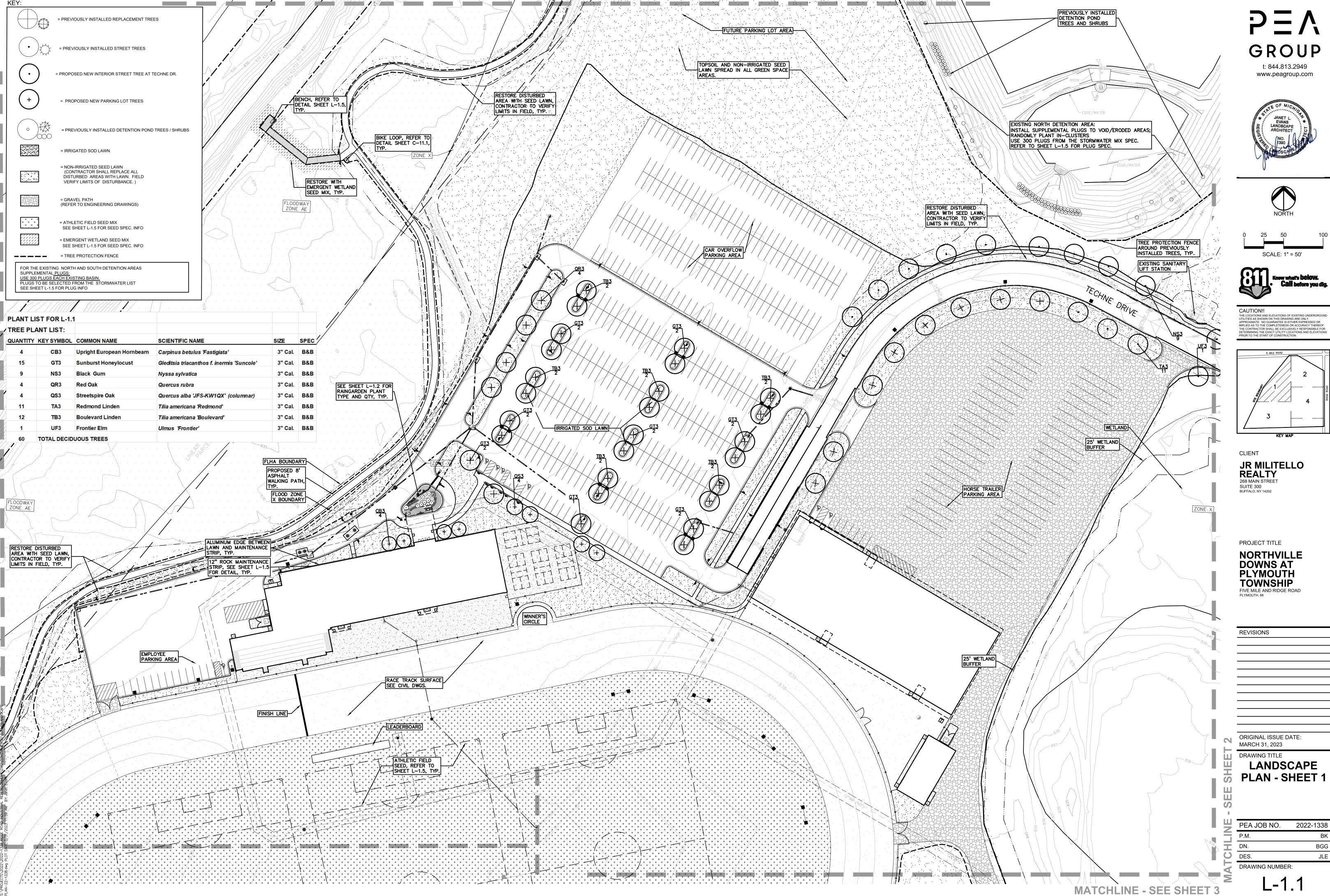
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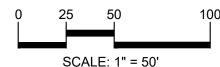
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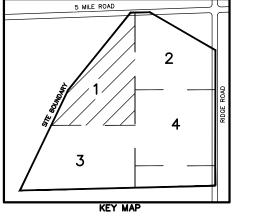


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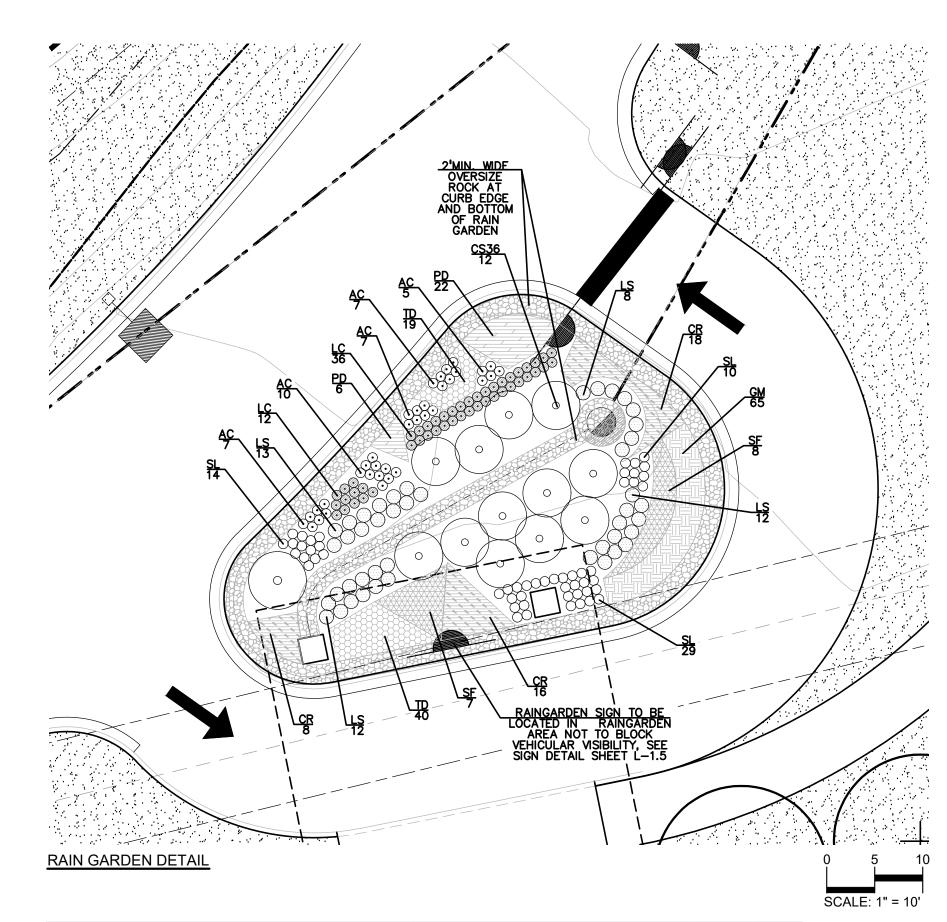




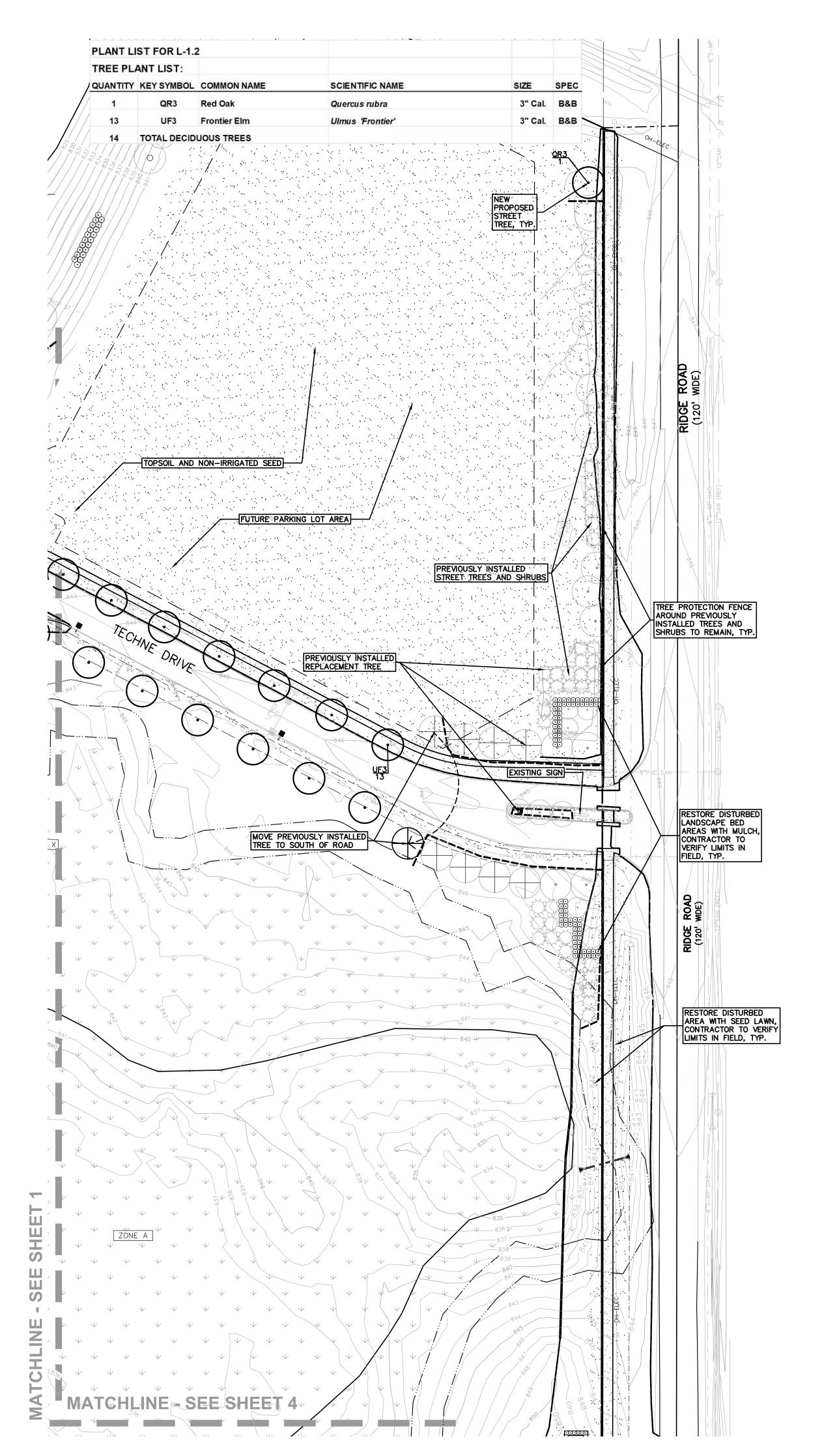


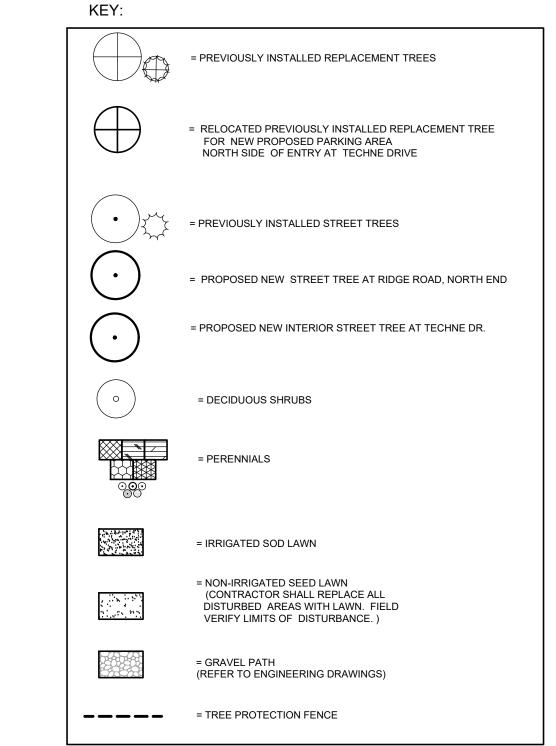


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	DRAWING NUMBER:		



RAIN GAR	RDEN PLANT	LIST:			
PERENNI	AL PLANT LI	ST:			
QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC
36	AC	Wild Columbine	Aquilegia canadensis	1 Gal.	Cont.
42	CR	Rosy Sedge	Carex rosea	1 Gal.	Cont.
65	GM	Wild Geranium	Geranium maculatum	1 Gal.	Cont.
48	LC	Cardinal Flower	Lobelia cardinalis	1 Gal.	Cont.
45	LS	Great Blue Lobelia	Lobelia siphilitica	1 Gal.	Cont.
28	PD	Blue Phlox	Phlox divaricata	1 Gal.	Cont.
15	SF	Broad-leaved Goldenrod	Solidago flexicaulis	1 Gal.	Cont.
53	SL	Side-flowering Aster	Symphyotrichum lateriflorum	1 Gal.	Cont.
59	TD	Early Meadow Rue	Thalictrum dioicum	1 Gal.	Cont.
391	TOTAL PEREN	INIALS			
SHRUB P	LANT LIST:				
QUANTITY	KEY SYMBOL	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC
12	CS36	Bergeson Compact Dogwood	Cornus sericea 'Bergeson'	36" Ht.	Cont.
12	TOTAL SHRU	BS			

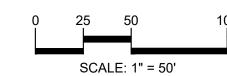








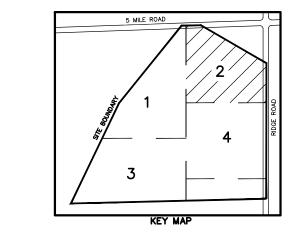






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CLIENT

JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

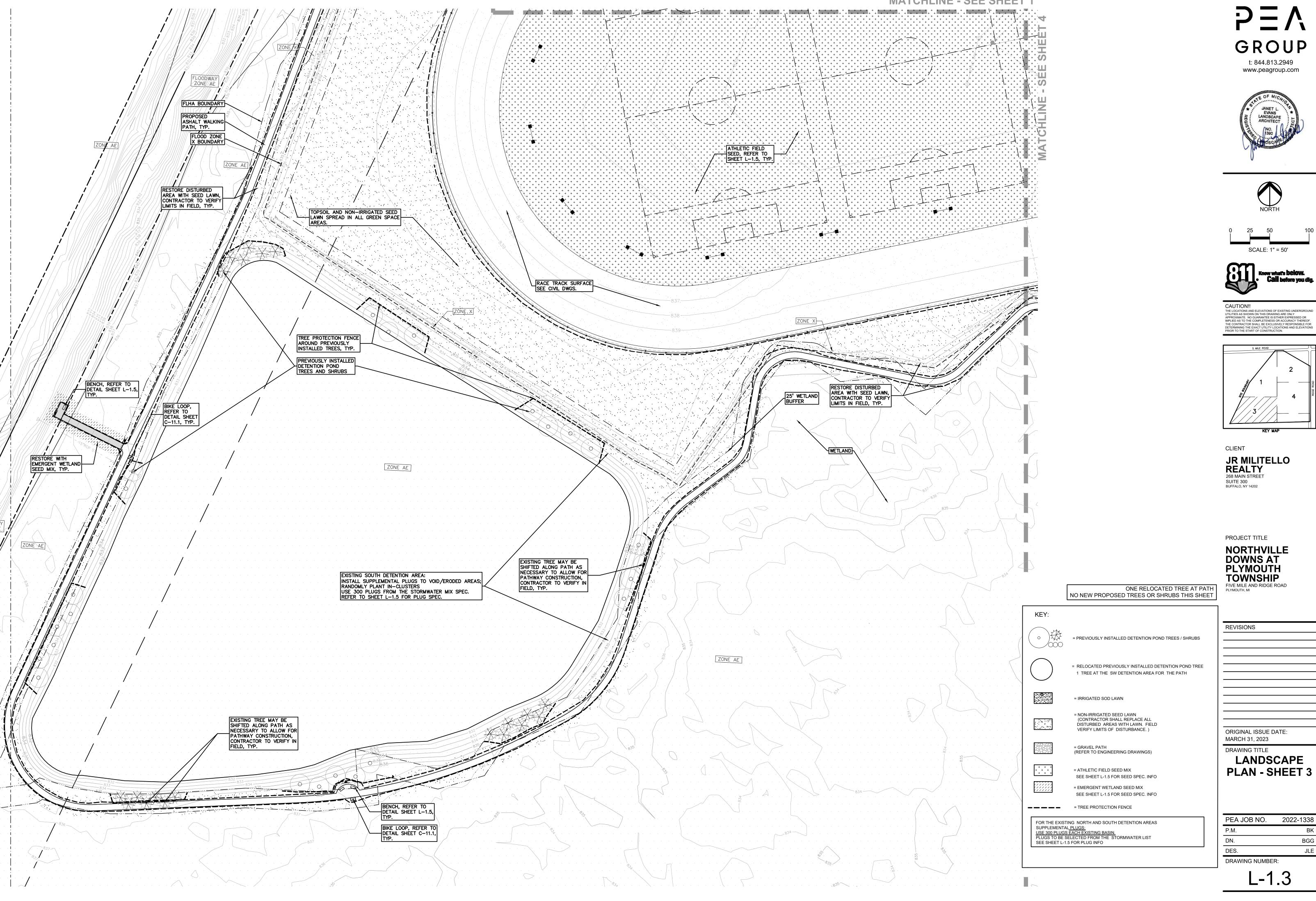
REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

LANDSCAPE PLAN - SHEET 2

PEA JOB NO.	2022-1338
P.M.	BK
DN.	BGG
DES.	JLE
DRAWING NUMBER	: :

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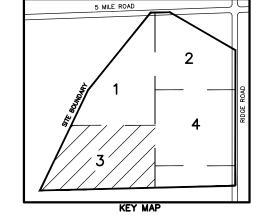








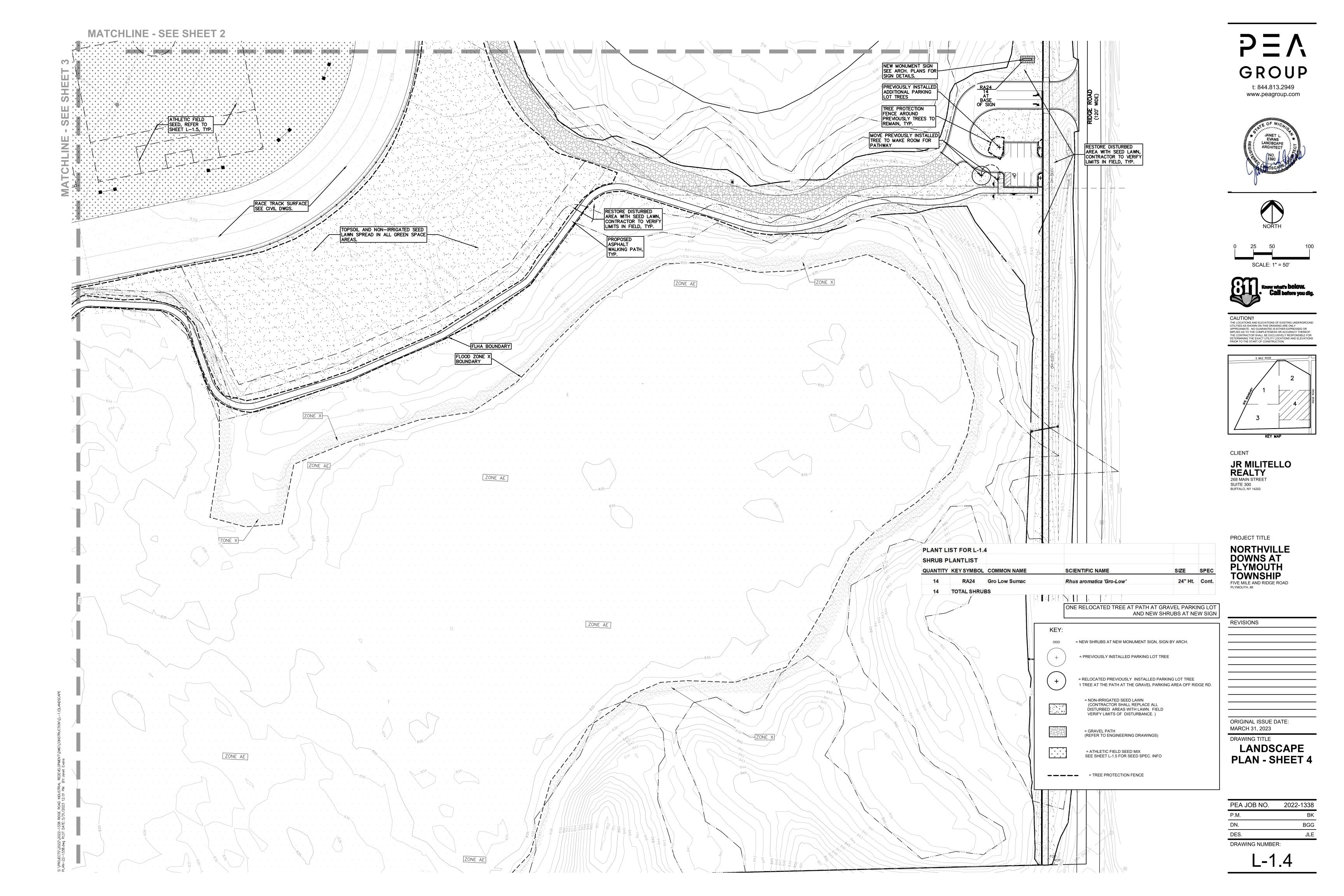
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	REVISIONS
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	ORIGINAL ISSUE DATE:
	MARCH 31, 2023
	DRAWING TITLE
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EA JOB NO.	2022-1338

BGG JLE



Emergent Wetland Seed Mix Stantec Native Plant Nursery 574-586-2412 stantec.com/native-plant-nursery

Botanical Name

Common Name Permanent Grasses/Sedges/Rushes: Bolboschoenus fluviatilis River Bulrush Carex comosa Bristly Sedge Carex lacustris Common Lake Sedge Carex lurida Bottlebrush Sedge Common Tussock Sedge Carex stricta Brown Fox Sedge Carex vulpinoidea Eleocharis palustris Great Spike Rush Common Rush Juncus effusus Leersia oryzoides Rice Cut Grass Schoenoplectus acutus Hard-stemmed Bulrush Chairmaker's Rush Schoenoplectus americanus Schoenoplectus tabernaemontani Softstem Bulrush

**Temporary Cover:** Avena sativa Common Oat Lolium multiflorum Annual Rye

Sparganium eurycarpum

Verbena hastata

Sweet Flag Acorus americanus Alisma spp. Water Plantain (Various Mix) Swamp Milkweed Asclepias incamata Cephalanthus occidentalis Buttonbush Decodon verticillatus Swamp Loosestrife Eutrochium maculatum Spotted Joe-Pye Weed Hibiscus spp. Rosemallow (Various Mix) Blue Flag Iris virginica Cardinal Flower Lobelia cardinalis Lobelia siphilitica Great Blue Lobelia Common Water Horehound Lycopus americanus Mimulus ringens Monkey Flower Peltandra virginica Arrow Arum Ditch Stonecrop Penthorum sedoides Pinkweed (Various Mix) Polygonum spp. Pontederia cordata Pickerel Weed Sagittaria latifolia Common Arrowhead

Common Bur Reed

Blue Vervain

FOR THE EXISTING NORTH AND SOUTH DETENTION AREAS SUPPLEMENTAL PLUGS: USE 300 PLUGS EACH EXISTING BASIN. PLUGS TO BE SELECTED FROM THE BELOW STORMWATER LIST. SELECT MIN. OF 2 GRASS, SEDGE, RUSH AND FORB SPECIES. INSTALL AND PREP PER MANUFACTURES SPECIFICATIONS. STANTEC OR APPROVED EQUAL

Stormwater Seed Mix STANTEC NATIVE PLANT NURSERY 574-586-2412 stantec.com/native-plant-nursery

Botanical Name Common Name Permanent Grasses/Sedges/Rushes: Bolboschoenus fluviatilis River Bulrush Crested Oval Sedge Carex cristatella Bottlebrush Sedge Carex Iurida Brown Fox Sedge Carex vulpinoidea Elymus virginicus Virginia Wild Rye Glyceria striata Fowl Manna Grass Common Rush Juncus effusus Leersia oryzoides Rice Cut Grass Panicum virgatum Switch Grass Schoenoplectus tabernaemontani Softstem Bulrush Dark Green Rush Scirpus atrovirens Scirpus cyperinus Wool Grass

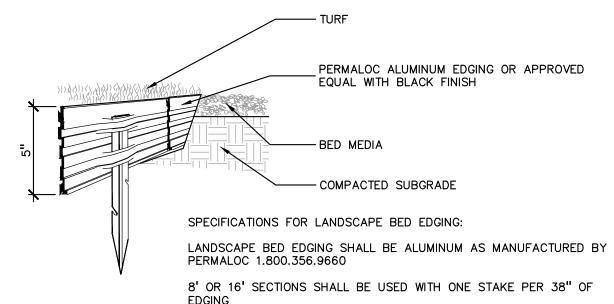
Temporary Cover: Common Oat Avena sativa Lolium multiflorum Annual Rye

Forbs & Shrubs: Water Plantain (Various Mix) Alisma spp. Asclepias incarnata Swamp Milkweed Bidens spp. Bidens (Various Mix) Helenium autumnale Sneezeweed Iris virginica Blue Flag Lycopus americanus Common Water Horehound Mimulus ringens Monkey Flower Riddell's Goldenrod Oligoneuron riddellii Ditch Stonecrop Penthorum sedoides Pinkweed (Various Mix) Polygonum spp. Rudbeckia subtomentosa Sweet Black-Eyed Susan Brown-Eyed Susan Rudbeckia triloba Common Arrowhead Sagittaria latifolia Wild Senna Senna hebecarpa Symphyotrichum novae-angliae New England Aster Thalictrum dasycarpum Purple Meadow Rue

FOR THE ATHLETIC FIELD; IN-FIELD AREA AT THE HORSE TRACK: SPORTS TURF PROVIDED BY RHINO SEED, WITH EROSION MAT, 800-482-3130 RHINOSEED.COM OR APPROVED EQUAL INSTALL AND PREP PER MANUFACTURES SPECIFICATIONS. RHINO SEED OR APPROVED EQUAL

Sports Turf 50/50 Mix Elite Kentucky Bluegrass 25% Elite Kentucky Bluegrass Turf Type Perrenial Ryegrass

Turf Type Perrenial Ryegrass



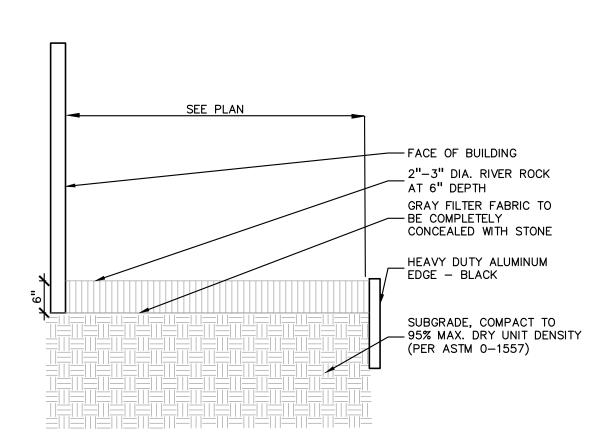
EDGING SHALL BE  $\frac{3}{16}$ " THICK X 4" DEPTH WHEN ADJ. TO MULCH AND 稿" THICK X 5" DEPTH WHEN ADJ. TO ROCK, FINISH: BLACK DURAFLEX MEETING AAMA 2603

STAKE SHALL SECURELY ENGAGE EDGING AND SHALL BE ENTIRELY BELOW TOP SURFACE OF EDGING

BETWEEN SECTIONS INSTALL AS PER MANUFACTURER'S SPECIFICATIONS WITH TOP OF EDGING  $\frac{1}{4}$ " ABOVE COMPACTED FINISH GRADE. FINISH GRADE TO BE COMPACTED ON BOTH SIDES OF EDGING TO MAINTAIN STABILITY

EDGING SHALL HAVE A MINIMUM OF 2" OF INTERLOCKING OVERLAP

ALUMINUM EDGE DETAIL



PEA

GROUP

t: 844.813.2949

www.peagroup.com

RIVER ROCK EDGE DETAIL SCALE:  $1 \frac{1}{2}$ " = 1'-0"

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CAUTION!!

CLIENT

**REALTY** 

SUITE 300

BUFFALO, NY 14202

268 MAIN STREET

JR MILITELLO

TREE PROTECTION WILL BE ERECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN; INCLUDING, BUT NOT LIMITED TO PLACING SOLVENTS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN DRIP LINES

GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINE OF PROTECTED TREES DURING CONSTRUCTION, NO PERSON SHALL ATTACH

ANY DEVICE OR WIRE TO ANY REMAINING TREE ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING

TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE

TREES TO BE PRESERVED SHALL BE IDENTIFIED WITH FLAGGING PRIOR TO THE TREE CLEARING

PROVIDE FENCE AROUND CRITICAL ROOT ZONE OF

- EXISTING SOIL

FENCE SHALL BE PLACED IN A CIRCLE WITH A

MINIMUM RADIUS OF 1' PER 1" DIAMETER OF THE TREE MEASURED AT 4.5' ABOVE GROUND

> 4'HIGH PROTECTIVE FENCING WITH STEEL POSTS - 10' O.C.

TREE PROTECTION DETAIL SCALE: 1'' = 3'-0''

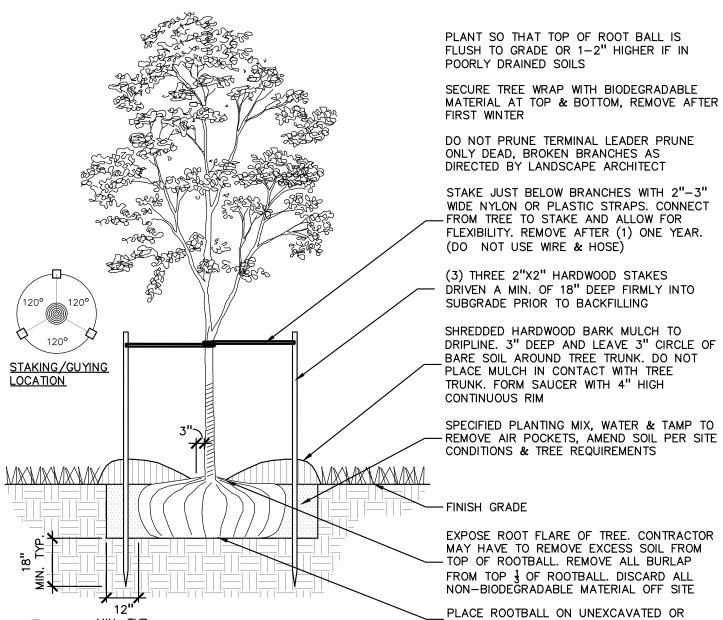
MIN. TYP.

SCALE: 1'' = 3'-0''

PROJECT TITLE **NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD

PLYMOUTH, MI

REVISIONS



DECIDUOUS TREE PLANTING DETAIL

DO NOT PRUNE TERMINAL LEADER PRUNE ONLY DEAD, BROKEN BRANCHES AS DIRECTED BY LANDSCAPE ARCHITECT STAKE JUST BELOW BRANCHES WITH 2"-3" WIDE NYLON OR PLASTIC STRAPS. CONNECT - FROM TREE TO STAKE AND ALLOW FOR FLEXIBILITY. REMOVE AFTER (1) ONE YEAR. (DO NOT USE WIRE & HOSE) (3) THREE 2"X2" HARDWOOD STAKES DRIVEN A MIN. OF 18" DEEP FIRMLY INTO SUBGRADE PRIOR TO BACKFILLING SHREDDED HARDWOOD BARK MULCH TO DRIPLINE. 3" DEEP AND LEAVE 3" CIRCLE OF BARE SOIL AROUND TREE TRUNK. DO NOT PLACE MULCH IN CONTACT WITH TREE TRUNK. FORM SAUCER WITH 4" HIGH CONTINUOUS RIM SPECIFIED PLANTING MIX, WATER & TAMP TO - REMOVE AIR POCKETS, AMEND SOIL PER SITE CONDITIONS & TREE REQUIREMENTS

DRAWING TITLE **LANDSCAPE DETAILS** 

ORIGINAL ISSUE DATE:

MARCH 31, 2023

PEA JOB NO. 2022-1338 P.M. DN. BGG DES. JLE DRAWING NUMBER:

FRAME MATERIAL: ALUMINUM OR APPROVED EQUAL FRAME FINISH: POWDERCOAT, ALUMINUM TEXTURE BY: FORMS+SURFACES QUANTITY: 4 TOTAL PHONE: 800.451.0410 CLIENT TO CONFIRM QUANTITIES AND EXACT PLACEMENT

SEAT MATERIAL: STAINLESS STEEL

SEAT FINISH: POWDERCOAT, ALUMINUM TEXTURE

<u>ORNAMENTAL BENCH DETAIL</u>

NOT TO SCALE

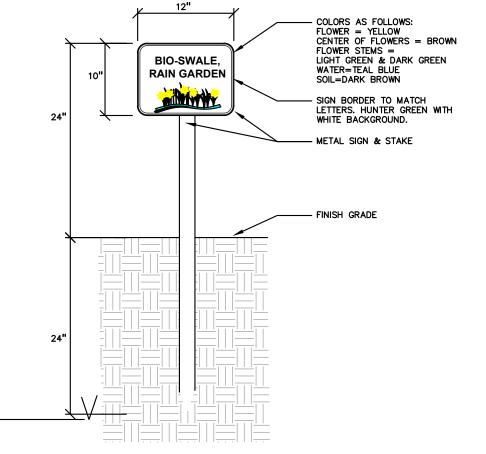
BENCH: 77"L X 24.25"D X32.75"H, BACKED

RATIO BENCH (BACKLESS OPTION AVAILABLE)

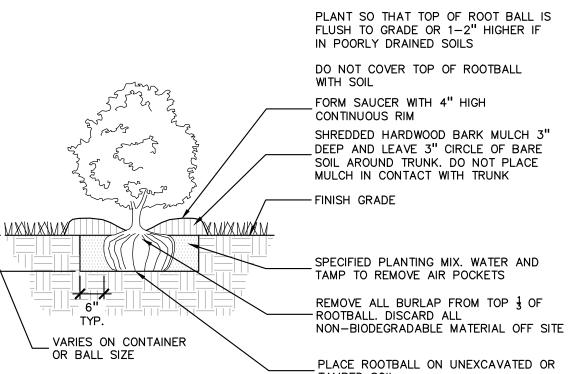
PLAN FOR √QUAN*T*H**†**Υ VARIES PER SPECIES SEE PLAN FOR \ QUANTITY PLANT PERENNIALS EQUAL DISTANCE IN ALL DIRECTIONS ALL SPACING IS TO BE TRIANGULAR UNLESS NOTED OR GRAPHICALLY SHOWN PLAN VIEW 3" SHREDDED BARK MULCH. DO NOT PILE MULCH AGAINST PLANT STEMS SHOVEL CUT EDGE OR ALUMINUM EDGING AS INDICATED ON PLAN - SPECIFIED PLANTING MIX NOTE: REMOVE ALL CONTAINERS PRIOR SECTION VIEW TO PLANTING

PERENNIAL PLANTING DETAIL

VARIES PER



RAINGARDEN LANDSCAPE MARKER DETAIL NOT TO SCALE



SHRUB PLANTING DETAIL

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

#### GENERAL LANDSCAPING REQUIREMENTS

- 1.0 GENERAL
- 1.1.1 Includes But Not Limited To
- 1. General procedures and requirements for Site Work.
- PRODUCTS Not Used
- EXECUTION
- PREPARATION

- A. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
- B. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.
- 2. Erosion Control
- A. Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or off-site drainage systems.
- B. Develop, install, and maintain an erosion control plan if required by
- C. Repair and correct damage caused by erosion.
- Existing Plants And Features:
- A. Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain.
- B. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Landscape
- C. Do not damage other plants and features which are to remain.
- 3.1.2 If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

#### END OF SECTION

#### LANDSCAPING PREPARATION

- 1.0 GENERAL
- 1.1.1 Includes But Not Limited To

SUMMARY

- General landscape work requirements.
- Comply with all applicable local, state and federal requirements, regarding naterials, methods of work, and disposal of excess and waste materials.
- Obtain and pay for all required inspections, permits, and fees.
- Provide notices required by governmental authorities.
- Locate and identify existing underground and overhead services and utilities within contract limit work areas. (Call Miss Dig: 1-800-482-7171 in
- Provide adequate means to protect utilities and services designated to
- Repair utilities damaged during site work operations at Subcontractor's
- When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in
- 1.3.5 Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Subcontractor's expense.
- 1.3.6 Perform landscape work operations and the removal of debris and materials to assure minimum interference with streets, walks, and other adjacent
- Obtain governing authorities' written permission when required to close or obstruct streets, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing
- 1.3.8 Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated
- The General Contractor will occupy the premises and adjacent facilities during the entire period of construction. Perform landscape work operations to minimize conflicts and to facilitate General Contractor's use of the premises and conduct of his normal operations.
- 1.3.10 Perform landscape preparation work before commencing landscape construction.
- Provide necessary barricades, coverings and protection to prevent damage to existing improvements indicated to remain.
- 1.3.12 Protect existing trees scheduled to remain against injury or damage including cutting, breaking or skinning of roots, trunks or branches, smothering by stockpiled construction materials, excavated materials or vehicular traffic
- 2.0 PRODUCTS
- MATERIALS/EQUIPMENT
- As selected by the General Contractor, except as indicated.
- 1. Tree protection:
- A. Wood fencing Snow fencing 4' height.
- B. Posts Steel fence post.
  - C. Herbicide for lawn restoration "Round—up" by Monsanto.
- EXECUTION
- EXISTING UTILITIES
- Call "MISS DIG" 811 before construction begins. Information on the drawings related to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.
- **CLEARING**
- Locate and suitably identify trees and improvements indicated to remain.
- \$2.2 Fencing/soil erosion fence is to be installed.
- \$2.3 Any equipment that compacts the soil in the areas of existing trees is not
- \$2.4 Protect trees scheduled to remain with 4' high snow fence per plans.

- 3.2.5 No vehicular traffic is permitted beneath drip line at any time. All lawn areas are to be worked by hand.
- 3.2.6 Clear and grub areas within contract limits as required for site access and
- 3.2.7 Remove trees, plants, undergrowth, other vegetation and debris, except items
- 3.2.8 Treat planting and lawn areas as required with herbicide per manufacturer recommendations to kill existing vegetation prior to planting, seeding and
- 3.2.9 Remove stumps and roots to a clear depth of 36" below subgrades. Remove stumps and roots to their full depth within 5'0" of underground structures, utility lines, footings, and paved areas.
- DISPOSAL OF WASTE MATERIALS
- Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted.
- 3.3.2 Maintain disposal routes, clear, clean and free of debris. 3.3.3 On site burning of combustible cleared materials is not permitted.
  - Upon completion of landscape preparation work, clean areas within contract limits, remove tools and equipment. Site to be clear, clean and free of materials and debris and suitable for site work operations.
- 3.3.5 Materials, items and equipment not scheduled for reinstallation or salvaged for the General Contractor are the property of the Landscape Contractor. Remove cleared materials from the site as the work progresses. Storage and sale of Landscape Contractors salvage items on site is not permitted.

#### FINISH GRADING AND TOPSOIL PLACEMENT

- SUMMARY

1.0

- 1.1.1 Includes But Not Limited To
- 1. Perform finish grading and topsoil placement required to prepare site for installation of landscaping as described in Contract Documents.
- 1.2 SUBMITTALS
- 1.2.1 Quality Assurance

GENERAL

- 1. Submit test on imported topsoil and on site stockpiled topsoil by independent licensed testing laboratory prior to use. Imported topsoil shall meet minimum specified requirements and be approved by Landscape Architect prior to use.
- 2. Provide and pay for testing and inspection during topsoil operations. Laboratory, inspection services, and Soils Engineer shall be acceptable to the Landscape Architect.
- 3. Submit report stating location of source of imported topsoil and account of recent use.
- 4. Test for pH factor, mechanical analysis, and percentage of organic
- 5. Submit test reports to General Contractor.
- 6. Sub-Contractor, or testing agency to make recommendations on type of quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.
- 1.3 QUALITY ASSURANCE
- Participate in pre-installation meeting with Landscape Architect.
- 1.4 PROJECT CONDITIONS
- 1.4.1 Also see Landscape Preparation Section.
- 1.4.2 Protect existing trees, plants, lawns, and other features designated to remain as part of the landscaping work.
- 1.4.3 Promptly repair damage to adjacent facilities caused by topsoil operations. Cost of repair at Subcontractor's expense.
- 1.4.4 Promptly notify the General Contractor and Landscape Architect of unexpected subsurface conditions.
- PRODUCTS
- MATERIALS 2.1
- Topsoil: supplied and stockpiled topsoil proposed for use must meet the testing criteria results specified. Topsoil must conform to adjustments and recommendations from the soil test and by the Landscape Architect.
- 2.1.2 Existing topsoil: existing topsoil from on-site stockpile shall be utilized. All processing, cleaning, and preparation of this stored topsoil to render it acceptable for use is the responsibility of the Subcontractor.
- Provide additional topsoil as required to complete the job. Topsoil must meet testing criteria results specified.
- All processing, cleaning, and preparation of this supplied topsoil to render it acceptable for use is the responsibility of the Subcontractor.
- Supplied and stockpiled topsoil, shall be fertile, friable, dark in color and representative of local productive soil, capable of sustaining vigorous plant growth and free of clay lumps, subsoil, noxious weeds or other foreign matter such as stones of 1" in any dimension, roots, sticks, and other extraneous material: not frozen or muddy. PH of soil range between 5.0
- 2.1.6 Soil shall not contain more than 2 percent of particles measuring over 2.0 mm in largest size
- Prepared topsoil shall be used in planting mixtures as specified in Trees, Plants, and Ground Cover; all beds prepared as specified
- 3.0 EXECUTION
- 3.1 EXAMINATION
- Do not commence work of this Section until grading tolerances specified are
- PREPARATION 3.2
- Prior to grading, dig out weeds from planting areas by their roots and remove from site. Before placing top soil in landscape areas, remove rocks larger than 1 inch in any dimension and foreign matter such as building rubble, wire, cans. sticks, concrete, etc.
- 3.2.3 Prior to placing topsoil, remove any imported base material present in planting areas down to natural subgrade or other material acceptable to Landscape Architect.
- 3.3 PERFORMANCE
- 3.3.1 Site Tolerances
- 1. Total Topsoil Depth
- - A. Lawn And Groundcover Planting Areas 3 inches minimum
  - B. Shrub Planting Areas 12 inches minimum throughout entire
- 2. Elevation of topsoil relative to walks or curbs -
- A. Seeded Lawn Areas 1/4 inch below
- B. Sodded Lawn Areas 1 1/2 inches below
- C. Shrub And Ground Cover Areas 3 inches below
- 3.3.2 Do not expose or damage existing shrub or tree roots.
- Redistribute approved existing top soil stored on site as a result of rough grading. Remove organic material, rocks and clods greater than 1 inch in any dimension, and other objectionable materials. Provide additional approved imported topsoil required for specified topsoil depth and bring surface to specified elevation relative to walk or curb.

- 3.3.4 For trees, shrubs, ground cover beds and plant mix for beds see Exterior Plants section.
- 3.3.5 Provide earth berming where indicated on Plans.
- Berming to be free flowing in shape and design, as indicated, and to blend into existing grades gradually so that the toe of slope is not readily visible. Landscape Architect or General Contractor's representative to verify final contouring before planting.
- Regardless of finish grading elevations indicated, it is intended that grading be such that proper drainage of surface water away from buildings will occur and that no low areas are created to allow ponding. Subcontractor to consult the General Contractor and Landscape Architect regarding variations in grade elevations before rough grading is completed.
- Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch per ft minimum unless otherwise noted. High point of finish grade nt building foundation shall be 6 inches minimum below finish floor level. Direct surface drainage in manner indicated on Drawings by molding surface to facilitate natural run—off of water. Fill low spots and pockets with top soil and grade to drain properly.
- 3.3.9 Rake all topsoil to remove clods, rocks, weeds, and debris.
- 3.3.10 Grade and shape area to bring surface to true uniform planes free from irregularities and to provide proper drainage and slopes per plans.
- Upon completion of topsoil operations, clean areas within contract limits, remove tools, equipment, and haul all excess topsoil off-site. Site shall be clear, clean, free of debris, and suitable for site work operations.

#### END OF SECTION

- LAWN SEEDING
- GENERAL 1.1 SUMMARY
- Includes But Not Limited To
- 1. Furnish and install seeded lawn as described in Contract Documents.
- 1.2 SUBMITTALS
- Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentage of purity, germination, and weed seed
- 1.3 DELIVERY AND STORAGE
- Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wettina and deterioration.
- PROJECT CONDITIONS 1.4
- 1.4.1 See landscape preparation section.
- Work notification: Notify Landscape Architect of General Contractor's representative at least seven (7) working days prior to start of seeding
- 1.4.3 Protect existing utilities, paving, and other facilities from damage caused by
- seeding operations. 1.4.4 Perform seeding work only after planting and other work affecting ground
- surface has been completed.
- 1.4.5 Provide hose and lawn watering equipment as required. The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components damaged during seeding operations at the
- Sub-Contractor's expense. WARRANTY
- 1.5.1 See Landscape Maintenance and Warranty Section
- PRODUCTS
- MATERIALS 2.1.1 Topsoil for Seeded Areas: See Topsoil Placement and Drawings.
- 2.1.2 Lawn seeded areas: Fresh, clean and new crop seed mixture. Mixed by
- Seed mixture composed of the following varieties, mixed to the specified proportions by weight and tested to minimum percentages of purity and
- 2.1.4 Irrigated Lawn Seed Mixture proportioned by volume as indicated below:

#### SEED TYPE PROPORTION PURITY GERMINATION Kentucky Bluegrass 50% 90% 75% 50% 30% Penn Lawn Fescue 95% Annual Ryegrass

PROPORTION PURITY GERMINATION
60% 90% 85% Kentucky 28# Common Bluegrass 20% 90% 90% Pennfine Perennial Rye 20% 90% 90%

2.1.5 Non-Irrigated Seed Mixture proportioned by volume as indicated below:

- 2.1.6 Fertilizer: granular, non burning product composed of not less that 50% organic slow acting, guaranteed analysis professional fertilizer. Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will
- pass through a 100 mesh sieve and 90% will pass through a 20% mesh 2.1.8 Straw Mulch: Used in crimping process only. Clean oat or wheat straw well seasoned before bailing, free from mature seed—bearing status, or roots of
- Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.
- INSPECTION

EXECUTION

- Landscape Architect or General Contractor's representative must approve finish surfaces, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.
- PREPARATION
- 3.2.1 SURFACE PREPARATION
  - 1. Seven days maximum prior to seeding, -A. Treat Lawn areas if required with "Round-Up" by Monsanto, per
  - label direction to kill existing vegetation prior to seeding. B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly,
  - and cultivate to properly break up clods and lumps. C. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.
  - D. Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.

E. Apply limestone to supplied topsoil if required by soil test report at

than 6.0 no more that 6.8. Distribute evenly by machine and

rate determined by the soil test, to adjust pH of topsoil to not less

- incorporate thoroughly into topsoil. F. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (43 lbs / acre).
- G. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

- H. After lawn areas have been prepared, take no heavy objects over them except lawn rollers
- After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs according to soil type.
- J. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and
- K. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.
- 3.3 INSTALLATION
- 3.3.1 SEEDING
  - Seed lawns only between April 1, and June 1, and fall seeding between August 15, and October 15, or at such other times acceptable to Landscape Architect.
  - 2. Seed immediately after preparation of bed. Seed indicated areas within contract Limits and areas adjoining contract limits disturbed as a result

4. Apply seed with a rotary or drop type distributor. Install seed evenly by

sowing equal quantities in two (2) directions, at right angles to each

- 3. Perform seeding operations when the soil is dry and when the winds do not exceed five(5) miles per hour velocity.
- 5. Sow seed at a rate of 300 lbs./acre. 6. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/8" of soil. Roll with light lawn roller.
- 7. Provide soil erosion planting mat where grade conditions required to stabilize the planting area.
- 3.3.2 HYDRO—SEEDING 1. Hydro-seeding: The application of grass seed and a wood cellulose fiber
  - approved spraving machine. A. Mix seed, fertilizer, and wood cellulose fiber in required amount of water to produce a homogeneous slurry. Add wood cellulous fiber after seed, water, and fertilizer have been thoroughly mixed and

mulch tinted green shall be accomplished in one operation by use of an

- apply at the rate of 200 pounds per acre dry weight. B. For hydro-seeding, wood cellulose fiber shall be used. Silva-Fiber
- C. Hydraulically spray material on ground to form a uniform cover impregnated with grass seed.

Mulch by Weyerhaeuer Company, Tacoma, WA (800-443-9179).

application of wood cellulose mulch at the rate of 1,000 pounds, dry

D. Immediately following application of slurry mix, make separate

underlying soil.

acceptable to the Landscape Architect.

1. Place straw mulch on seeded areas within 24-hours after seeding.

E. Apply cover so that rainfall or applied water will percolate to

- 2. Place straw mulch uniformly in a continuous blanket at a rate of 2-1/2 tons per acre, or two (2) 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when
- 3. Crimp straw into soil by use of a "crimper". Two passes in alternate direction required. Alternative methods on great too small for crimper must be approved by the Landscape Architect or Owner's Representative.
- 1. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded: continue until dense lawn established.
- 2. Damage to seeded area resulting from erosion to be repaired by Sub
- germination period, return to project to refertilize and reseed to establish 4. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn

3. In event Sub Contractor does not establish dense lawn during first

Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all

3.3.3 ESTABLISH LAWN

excess materials, debris, and equipment. Repair damage resulting from seeding operations.

areas to produce a dense turf, as specified.

3.5 MAINTENANCE See Landscape Maintenance and Warranty Section.

3.4 CLEANING

#### 3.6.1 See Landscape Maintenance and Warranty Section. END OF SECTION

- LAWN SODDING
- 1.0 GENERAL
- 1.1 SUMMAR' 1.1.1 Includes But Not Limited To
- QUALITY ASSURANCE
- Sod: Comply with American Sod Producers Association (ASPA) classes of sod

1. Furnish and install sodded lawn as described in Contract Documents.

- Submit sod growers certification of grass species. Identify source location
- Submit manufacturer's certification of fertilizer.
- DELIVERY, STORAGE, AND HANDLING

1.4.1 Cut, deliver, and install sod within 24 hour period.

- Do not harvest or transport sod when moisture content may adversely affect
- 1.4.3 Protect sod from sun, wind, and dehydration prior to installation. Do not tear, stretch, or drop sod during handling and installation.
- 1.4.4 Sod which dries out before installation will be rejected.

1.5 PROJECT CONDITIONS

See Landscape Preparation section.

surface has been completed.

barriers as required.

- Work notification: Notify Landscape Architect or General Contractor's representative at least seven (7) working days prior to start of sodding
- 1.5.3 Protect existing utilities, paving, and other facilities from damage caused by Perform sodding work only after planting and other work affecting ground

1.5.5 Restrict traffic from lawn areas until grass is established. Erect signs and

- 1.5.6 Provide hose and lawn watering equipment as required.
- 1.5.7 The irrigation system will be installed prior to sodding. Locate, protect, and maintain the irrigation system during sodding operations. Repair irrigation system components damaged during sodding operations at the Subcontractor's expense.
- 1.6 WARRANTY

1.6.1 See Landscape Maintenance and Warranty Section.

2.1

2.0 PRODUCTS

MATERIALS

- Sod: An "approved" nursery grown blend of improved Kentucky Bluegrass
- Sod containing Common Bermudagrass, Quackgrass, Johnsongrass, Poison Ivy, Nutsedge, Nimblewill, Canada Thistle, Timothy, Bentgrass, Wild Garlic, Ground
- Ivy. Perennial Sorrel, or Bramearass weeds will not be acceptable. 2.1.3 Provide well rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, and free of weeds, undesirable grasses, stones, roots, thatch, and extraneous material;
- viable and capable of growth and development when planted. 2.1.4 Furnish sod, machine stripped in square pads or strips not more than 3'-0" long; uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before
- 2.1.5 Fertilizer: granular, non burning product composed of not less that 50%
- organic slow acting, guaranteed analysis professional fertilizer. 2.1.6 Type A: starter fertilizer containing 20% nitrogen, 12% phosphoric acid, and 8% potash by by weight or similar approved composition.

2.1.7 Ground Limestone: Used if required by soil test report: Containing not less

than 85% of total carbonates and ground to such fineness that 50% will

pass through a 100 mesh sieve and 90% will pass through a 20% mesh

2.1.8 Stakes: softwood, 3/4" x 8" long.

- Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.
- 2.1.10 Topsoil: see Topsoil Placement section
- 3.0 EXECUTION

INSPECTION

3.2.1 Surface Preparation:

- until unsatisfactory conditions are corrected. 3.2 PREPARATION
  - 1. Seven days maximum prior to sodding, -

3.1.1 Landscape Architect or General Contractor's representative must approve

recommendations to kill existing vegetation prior to sodding. b. Loosen topsoil areas to minimum depth of 4", dampen thoroughly,

c. Rake area to remove clods, rocks, weeds, roots, debris, and stones

Apply limestone to supplied topsoil if required by soil test report at

Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of

rate determined by the soil test, to adjust pH of topsoil to not less

a. Treat Lawn areas if required with herbicide per manufacturer

finish surfaces, grades, topsoil quality and depth. Do not start sodding work

over 1" in any dimension. Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.

and cultivate to properly break up clods and lumps.

than 6.0 no more that 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.

actual nitrogen 1,000 sq. ft. (43 lbs / acre).

them except lawn rollers.

sidewalks, drains, and seeded areas.

Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

h. After lawn greas have been prepared, take no heavy objects over

- After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs.
- Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and
- k. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to sodding.
- Dampen dry soil prior to sodding. INSTALLATION
  - 1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips. Do not overlay edges. Stagger strips to offset ioints in adjacent course. Remove excess sod to avoid othering of

adjacent grass. Provide sod pad top flush with adjacent curbs,

3. Install initial row of sod in a straight line, beginning at the bottom of slopes, perpendicular to direction of the sloped area. Place subsequent

2. Do not lay dormant sod or install sod on saturated, frozen soil.

rows parallel to and lightly against previously installed row.

4. Peg sod on slopes greater than 3 to 1 or in centerline of swales to prevent slippage at a rate of 2 stakes per yard of sod.

5. Water sod thoroughly with a fine spray immediately after laying to obtain

7. Install sod at indicated areas within contract limits and areas adjoining

6. Roll with light lawn roller in two directions perpendicular to each other to ensure contact with sub grade.

contract limits disturbed as a result of construction operations.

moisture penetration through sod into top 4 inches of topsoil.

8. Damage to sodded area resulting from erosion to be repaired by

3.5

- 3.4.1 Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from
- 3.5.1 See Landscape Maintenance and Warranty Section. ACCEPTANCE

MAINTENANCE

sodding operations.

CLEANING

- 3.6.1 See Landscape Maintenance and Warranty Section. END OF SECTION

LANDSCAPE ARCHITECT



t: 844.813.2949

www.peagroup.com



CAUTION THE LOCATIONS AND ELEVA TILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF HE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT

PLYMOUTH, MI

REVISIONS

REALTY

268 MAIN STREET

SUITE 300

BUFFALO, NY 14202

PROJECT TITLE NORTHVILLE **DOWNS AT PLYMOUTH** TOWNSHIP

FIVE MILE AND RIDGE ROAD

DRAWING TITLE LANDSCAPE **SPECIFICATIONS** 

ORIGINAL ISSUE DATE:

MARCH 31, 2023

PEA JOB NO. 2022-1338 BK BGG DES. JLE

DRAWING NUMBER:

#### **EXTERIOR PLANTS**

- 1.0 GENERAL
- SUMMARY
- 1.1.1 Includes But Not Limited To 1. Furnish and install landscaping plants as described in Contract
- 1.2 QUALITY ASSURANCE
- Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.
- Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in
- 1.2.3 All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of two years.
- Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional charge. Larger plants shall not be cut back to size indicated.
- 1.2.5 Provide "specimen" plants with a special height, shape, or character of growth. Landscape Subcontractor is to tag specimen trees or shrubs at the source of supply. The Landscape Subcontractor shall inspect all plant material at source prior to Landscape Architect's approval. Landscape Subcontractor shall accompany Landscape Architect on final selection trip. The Landscape Architect will inspect specimen selections for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for
- Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety.
- Approval of plant selection at the place of growth shall not impair the right of inspection and rejection upon delivery at the site or during progress of the work.
- Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.
- 1.2.9 Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this section.
- 1.2.10 Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All plantings indicated on Drawings are required
- SUBMITTALS
- Provide and pay for material testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following data
  - 1. The loss of weight by ignition and moisture absorption capacity shall be tested for peat moss
- 1.3.2 Submit the following material samples to Landscape Architect: 1. Peat moss, shredded hardwood bark mulch, planting accessories,
- pre-emergent herbicides, and plant fertilizers. 1.3.3 Submit the following materials certification to Landscape Architect:
- 1. Topsoil source and ph value, peat moss, and plant fertilizer.
- DELIVERY, STORAGE, AND HANDLING
- Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.
- 1.4.2 Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be
- Spray deciduous plants in foliage with an approved "Anti-Desiccant" mmediately after digging to prevent dehydration.
- 1.4.4 Dig, pack, transport, and handle plants with care to ensure protection
- Inspection certificates required by law shall accompany each shipment invoice or order to stock on arrival. The certificate shall be filed with the General Contractor's representative.
- 1.4.6 Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, shredded hardwood bark mulch, or in a manner acceptable to the General Contractor's representative.
- 1.4.7 Water heeled in plantings daily.
- No plant shall be bound with rope or wire in a manner that could damage or
- 1.4.9 Cover plants transported on open vehicles with a protective covering to prevent wind burn.
- 1.4.10 Frozen or muddy topsoil is not acceptable.
- PROJECT CONDITIONS
- See Landscape Preparation Section.
- Work notification: notify Landscape Architect at least seven working days prior to installation of plant material.
- Protect existing utilities, paving, and other facilities from damage caused by landscapina operations
- 1.5.4 A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the proposal form. In the event that quantity discrepancies or material omissions occur in the proposal form, Subcontractor shall notify the Landscape Architect during the proposal bidding process.
- 1.5.5 An irrigation system will be installed prior to planting. Locate, protect, and maintain the irrigation system during planting operations. Repair irrigation system components, damaged during planting operations, at the Landscape Subcontractor's expense.
- 1.5.6 The Landscape Subcontractor shall inspect existing soil conditions in all areas of the site where his operations will take place, prior to the beginning of work. It is the responsibility of the Landscape Subcontractor to notify the General Contractor's representative and the Landscape Architect in writing of any conditions which could affect the survivability of plant material to be
- 1.6 WARRANTY
- See Landscape Maintenance and Warranty Standards.
- ể **ὧ 2.0** § 2.1
- **MATERIALS**

PRODUCTS

- Plants: Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.
- 1. Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.
- 2. All trees shall have clay or clay loam balls. Trees with sand balls will be
- 3. Provide tree species that mature at heights over 25'-0" with a single, main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.

- 4. Plants planted in rows shall be matched in form, (see specimen stock).
- 5. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.
- 6. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.
- 7. Evergreen trees shall be unsheared and branched to the ground.
- 8. Shrubs and small plants shall meet the requirements for spread and
- 9. Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.
- 10. Bare root trees are not acceptable.

height indicated on the drawings.

- 11. Provide plant materials from licensed nursery or grower.
- 2.1.2 Bare root plants: dua with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being puddled immediately after they are dua or packed in moist straw or peat moss.
- Container grown stock: grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.
  - 1. No plants shall be loose in the container.
  - 2. Container stock shall not be root bound.
  - 3. Single stemmed or thin plants will not be accepted.
  - 4. Side branches shall be generous, well twigged, and the plant as a whole well bushed to the around.
  - 5. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.
- Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root system (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.
- Specimen stock: all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branchina density.
  - 1. Matched plantings should be obtained from the same nursery and, preferably, from the same row or line. All specimen material will be approved by the Landscape Architect at nursery.
- Topsoil for planting mix: fertile, frigble, natural topsoil of loamy character. without admixture of subsoil material, obtained from a well drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials with acidity range of between ph 6.0-6.8 for ericaceous plants.
- Peat moss: brown to black in color, weed and seed free granulated raw
  - 1. Provide ASTM D2607 sphagnum peat moss with a ph below 6.0 for ericaceous plants.
- 2.1.8 Planting mixture Type A trees: standard planting backfill shall be a mixture of ½native soil (excavated from plant pits), ¼topsoil, and ¼sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's
- 2.1.9 Planting mixture Type B for perennial flowers, groundcover beds, and ericaceous plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 peat. All existing soil shall be excavated and removed. Adding fertilizer types "A" and "B" to mixture per manufacturer's requirements. Follow planting details. Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.
- 2.1.10 Plant fertilizer Type A to be "Drimanure" applied per manufacturer recommendations
- 2.1.11 Plant fertilizer Type B to be "14-14-14". Apply per manufacturer
- 2.1.12 Bone Meal 5 lbs. per cubic yard of soil mixes.

requirements. Follow planting details.

- 2.1.13 Lime to be ground dolomitic limestone, ninety—five percent (95%) passing through #100 mesh screen. Use to adjust soil pH only, under direction of
- 2.1.14 Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine
- 2.1.15 Anti-Desiccant: protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with Manufacturer's instructions.
- 2.1.16 Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size, shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges, humps, or depressions.
- 2.1.17 Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.
- 2.1.18 Stakes for staking :(3) Three Hardwood, 2" x 2" x 8'-0" long. Driven a min. of 18" deep firmly into subgrade prior to backfilling. Stakes for guying: Hardwood, 2" x 2" x 36" long.
- 2.1.19 Guying/staking material: With 2"-3" wide fabric straps, connect from tree to stake. Remove after (1) year, allow for flexibility (do not use wire & hose).
- 2.1.20 Tree wrap: standard waterproofed tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Secure tree wrap with biodegradable material at top and bottom. Remove after first winter.
- 2.1.21 Twine: two-ply jute material.
- 2.2 MEASUREMENTS
- Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.
- 2.2.2 The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
- 2.2.3 Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest direction would be classified as 12 inch stock.
- 2.2.4 Plants properly trimmed and transplanted should measure same in every
- 2.2.5 Measure caliper of trees 6 inches above surface of ground.
- Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
- Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:
- 1. If complying with Contract Document requirements in all other respects.
- 2. If at no additional cost to Owner.
- 3. If sizes of roots or balls are increased proportionately.
- 2.2.8 The height of the trees, specified by height, measured from the crown of the
  - roots to the top of the top branch, shall not be less than the minimum size designated on the drawings.
- 3.0 EXECUTION
- 3.1 INSPECTION
- 3.1.1 Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.
- 3.1.2 Individual plant locations shall be staked on the project site by the

- Landscape Contractor and approved by the Landscape Architect before any planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the General Contractor / Owner.
- 3.1.3 Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.
- 3.2 TIME OF PLANTING
- Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.
- 3.2.2 Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant prior to planting operation.
- 3.2.3 Planting times other than those indicated must be acceptable to the

the soil surface one (1") inch below finish grade

- Landscape Architect. 3.3 PREPARATION
- 3.3.1 General: See Landscape Preparation Section
- 3.3.2 Vegetation Removal
  - Strip existing grass and weeds, including roots from all bed areas leaving
  - 2. Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubbery beds and all mulch areas before application of preemergence herbicide, per manufacture's recommendations. Clean area of all dead material after five (5) days.
  - 3. Pre-Emergence Herbicide: applied per manufacturer recommendations to same area where "Herbicide" has been applied and to planting bed areas, after area is cleared of dead vegetation.
  - 4. Herbicides to be applied by licensed applicator as required by the State.
  - 5. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".
  - 6. Roughen sides of excavations
  - 7. Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.
- 3.3.3 Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds
- Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B" Ground Cover shall be planted after bed has been backfilled with plant mix and mulched. Plant ground cover through mulch and into plant mix.
- 3.3.4 Mass Shrub Beds / Hedge Beds:
  - 1. Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".

1. Excavate existing soil to 8" depth over entire bed area and remove soil

from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to

- 3.3.5 Annual Flower Beds:
- Planting shall be performed only by experienced workman familiar with

an 8" depth with premixed planting mixture "Type B".

- planting procedures under the supervision of a qualified supervisor. 3.4.2 Planting pits shall be round, with vertical sides and flat bottoms, and sized
- in accordance with outlines and dimensions shown on the planting details.
- 3.4.3 See drawings for planting details. 3.4.4 If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape
- 3.4.5 Set plant material in the planting pit to proper grade and alignment.
  - Set plants upright, plumb, and faced to give the best appearance or
  - 2. Set plant material so it is flush to finish grade after settling, or 1-2"
  - higher in poorly drained soil, or as directed by Landscape Architect. 3. No filling will be permitted around the trunks or stems.

relationship to each other or adjacent structure.

- 4. Do not cover top of root ball with soil.
- 5. Backfill pit with planting mixture. Do not use frozen or muddy mixtures for backfilling.
- 6. Form a ring of soil around the edge of the planting pit to retain water.
- 3.4.6 After balled and burlapped plants are set, tamp planting mixture around of
- balls and fill all voids and remove air pockets. 3.4.7 Remove all burlap, ropes, and wires from top 1/3 of balls.
- Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 6" of
- Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.
- 3.4.10 Water immediately after planting.
- 3.4.11 Apply pre-emergent herbicide to bed areas per manufacturer's
- recommendations before mulching.

3.7 PRUNING

- 3.5 MULCHING Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to dripline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering,
- rake mulch to provide a uniform finished surface. 3.5.2 Mulch shall not be placed in contact with trunks or stems.

tall and over with metal fence post, three (3)per tree.

- 3.5.3 Mulch ground cover beds with shredded bark mulch 2" to 3" deep prior to
- 3.5.4 Plant ground cover through mulch.
- 3.6 WRAPPING, GUYING, AND STAKING
- Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.
- 3.6.2 Wrap trunks of all trees spirally from bottom to top with specified tree wrap
  - Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.

Stake deciduous trees under 4" caliper. Stake evergreen trees under 6'-0"

- 3.6.5 Guy deciduous trees 4" caliper and over. Stake evergreen trees 6'-0" tall and over with metal fence post, three (3) per tree.
- 3.6.6 All work shall be acceptable to the Landscape Architect/Owner's representative.

- Remove or cut back broken, damaged, and unsymmetrical growth of new
- Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Do not prune terminal leader. Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud a distance of not less than ½ the diameter of the supporting branch. Make cut on an angle.
- 3.7.3 Prune evergreens only to remove broken or damaged branches.
- 3.8 MAINTENANCE
- See Landscape Maintenance and Warranty Standards.
- 3.9 CLEANING
- Perform cleaning during installation of the work and upon completion of the work. Remove from all site excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.
- END OF SECTION

#### LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS

- 1.0 GENERAL
- SUMMARY
- Includes But Not Limited To
  - . Provide maintenance for new landscaping as described in Contract
  - 2. The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's Representative and Landscape Architect.

PRODUCTS - Not Used

3.0 EXECUTION

2.0

- 3.1 PERFORMANCE
- Acceptance of Installation

the Landscape Architect.

period, as outlined below.

- 1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.
- a. Following the acceptance inspection a punch list will be issued by
- 3.1.6 Final Acceptance Upon Conclusion of the Warranty Period b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.
- c. At the time of acceptance all plant material shall be of vigorous d. It is the responsibility of the Landscape Subcontractor to make the

written request for inspection of installation in a timely fashion.

- e. If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty
- 2. Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's Representative and Landscape Architect provided work offered for Inspection is complete, including maintenance as
- 3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of this work completed to
- 3.1.2 Project Warranty

Landscape Architect

- 1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.
- 2. The Landscape Subcontractor shall guarantee trees, shrubs, ground cover beds and seeded or sodded areas through construction and for a period of one (1) year after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or
- incidents which are beyond Landscape Subcontractor's control.
- 3.1.3 Maintenance During One (1) Year Project Warranty 1. To insure augrantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during
  - construction and for the full Project Warranty Periods. a. Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unsightly condition, or having lost natural shape, resulting from dieback,
  - excessive pruning, or inadequate or improper maintenance as part of b. Prior to any replacements, Landscape Subcontractor shall review

individual plants in question with Landscape Architect to determine

reason for plant demise. 2. Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and

planting procedures to receive approval of replacement materials by

3. Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape

4. Areas damaged as a result of replacement operation are to be restored

- by Landscape Subcontractor at no cost to the General Contractor or Landscape Architect. 5. The Landscape Subcontractor shall be responsible for watering all plantings through the warranty period and shall keep guy wires taut, raise tree balls which settle, furnish and apply sprays as necessary to keep
- the plantings free of disease and insects until the end of the warranty 6. The Landscape Subcontractor shall remove and replace trees, shrubs or
- other plants found to be dead or in unhealthy condition. a. Rejected plants and materials shall be removed promptly.
- Replacements shall be made during the following normal planting c. Trees and shrubs which are in doubt shall be replaced, unless, in
- Project Warranty Period for full growing Season. 7. The Landscape Contractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no

later than December 1, during the one (1) year project warranty.

8. The first spring after plant installation the contractor shall check all

the opinion of the Landscape Architect, it is advisable to extend

present, it shall be removed and disposed of off-site. 9. All stakes, guy wires, tree wrap paper, dead twigs and branches shall be removed from tree and plant materials at the end of this warranty

trees to insure twine has rotted from around the trunk. If twine is still

- 3.1.4 Maintenance of Seeded Lawn Areas
  - 1. The Landscape Subcontractor shall maintain seeded lawn areas

what season the seed was installed

- a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than one (1) foot of area up to a maximum of 3% of the total seeded lawn area is established.
- b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of
- 2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows) . When lawn reaches 3" in height it shall be cut to 2" in height.
- 3. The Owner assumes cutting responsibilities following the Acceptance of
- Installation of the seeded lawn 4. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape

Architect, the Owner shall assume all seeded lawn maintenance

3.1.5 Maintenance of Sodded Lawn Areas

responsibilities.

representative.

- 1. The Landscape Subcontractor shall maintain sodded lawn areas
- Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and resod until a full uniform, smooth stand of sod is knitted to topsoil, and accepted by the Landscape Architect or his or her

Replace undesirable or dead areas with new sod.

- 2. Water sod thoroughly, as required to establish proper rooting 3. Repair, rework, and resod all greas that have washed out or are eroded.
- 4. Mow lawn areas once as soon as sod has rooted sufficiently and knitted to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).
- 5. The Owner assumes mowing responsibilities following the Acceptance of Installation of the sodded lawn.
- 6. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all sodded lawn maintenance

2. After the inspection for final acceptance, a punch list will be issued by

the Landscape Architect. Upon completion of all punch list items, the

Landscape Architect and the Owner's Representative shall reinspect the

- 1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect and Owner's Representative shall be present
- END OF SECTION
- NOTE: The Owners may at their option elect to utilize a Construction Manager in lieu of a General Contractor for all matters pertaining to these specifications and the site work.

project and issue a Written Statement of Final Acceptance.



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HE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUN

APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR MPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF

THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR

DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

TILITIES AS SHOWN ON THIS DRAWING ARE ONLY

CAUTION!!

CLIENT

REALTY

268 MAIN STREET

SUITE 300

BUFFALO, NY 14202

JR MILITELLO

NORTHVILLE **DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

PROJECT TITLE

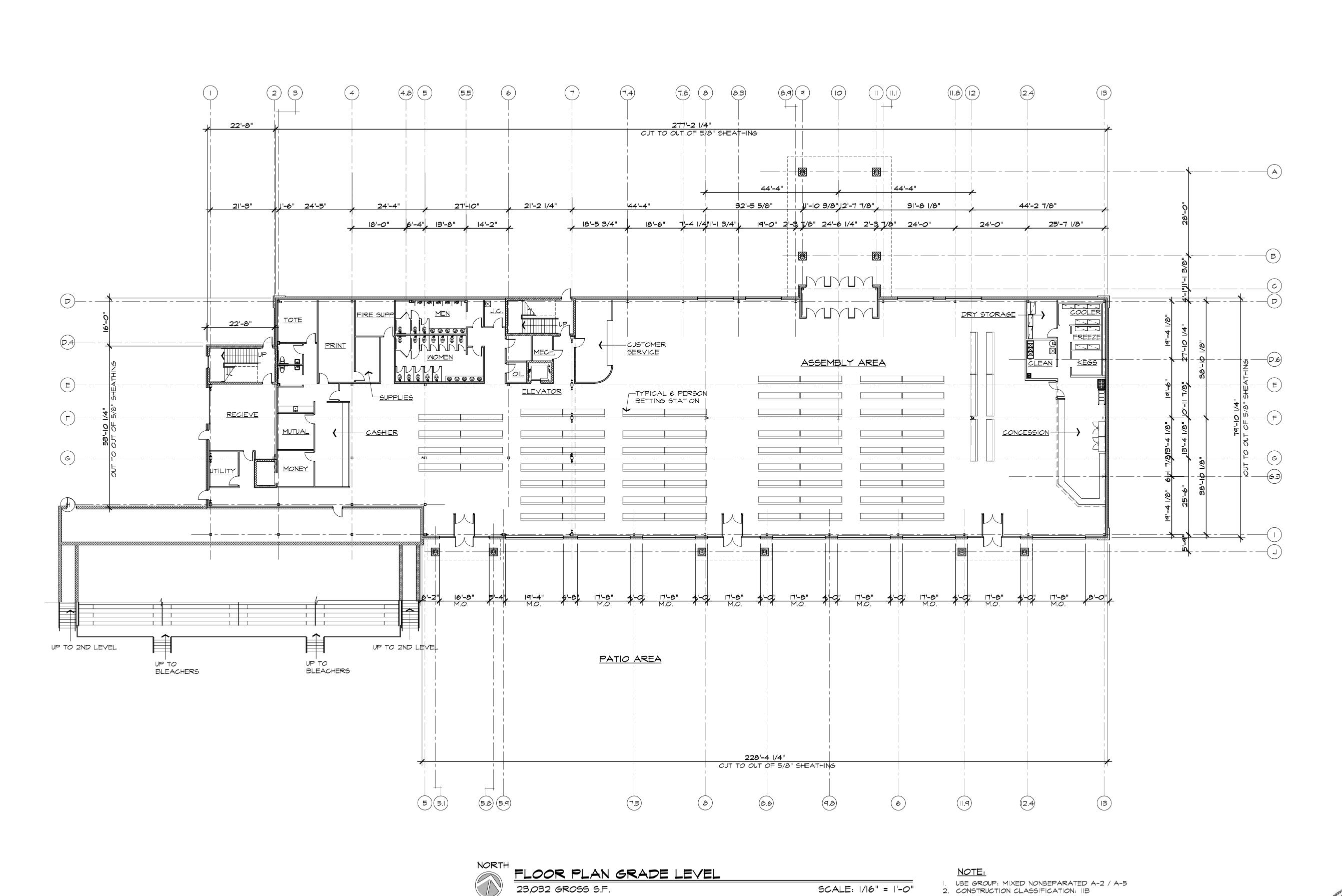
MARCH 31, 2023

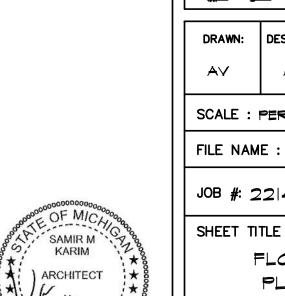
ORIGINAL ISSUE DATE:

DRAWING TITLE LANDSCAPE **SPECIFICATIONS** 

PEA JOB NO. 2022-1338 BK BGG DES. JLE

DRAWING NUMBER:





ISSUED FOR DATE PUD REVIEW 1.16.23 3.31.23

**ARCHITECTURAL DESIGN** 

> RESIDENTIAL COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC

24001 ORCHARD LAKE RD., STE. 180A FARMINGTON, MICHIGAN 48336 PH: (248) 965-9101 WEB: WWW.GAVASSOCIATES.COM

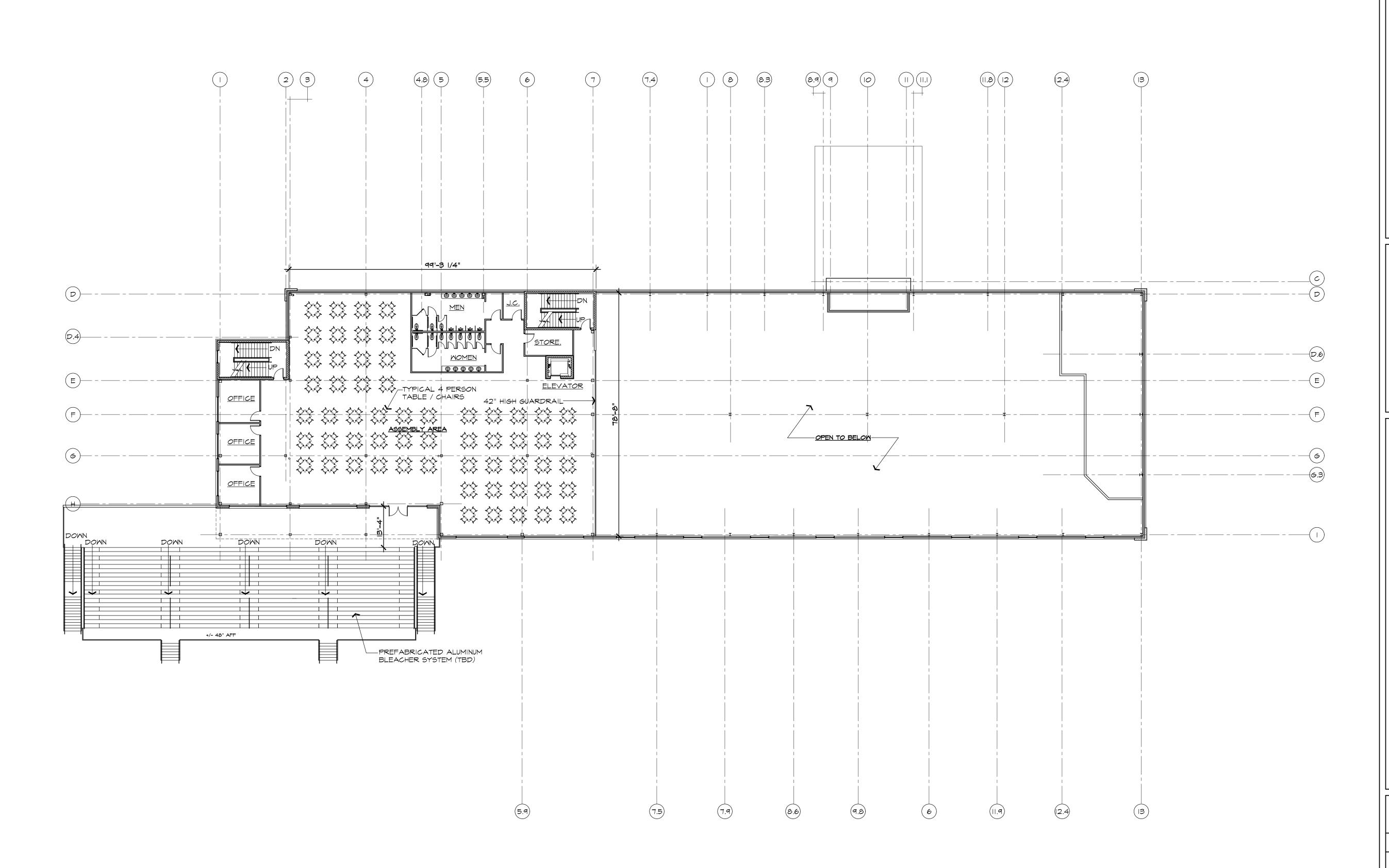
DRAWN: DESIGNED: CHECKED:

SCALE : PER PLAN

JOB #: 22|43

SHEET TITLE FLOOR PLAN

SHEET #



SECOND LEVEL FLOOR PLAN GRANDSTAND

INTERIOR VIEWING: 11,775 GROSS S.F. GRANDSTAND: 4,900 GROSS S.F.

ISSUED FOR PUD REVIEW 1.16.23 3.31.23

**ARCHITECTURAL** DESIGN

> RESIDENTIAL COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC 24001 ORCHARD LAKE RD., STE. 180A FARMINGTON, MICHIGAN 48336 PH: (248) 985-9101 WEB: WWW.GAVASSOCIATES.COM

DESIGNED: CHECKED: DRAWN:

SCALE : PER PLAN

FILE NAME:

JOB #: 22|43

) ARCHITECT

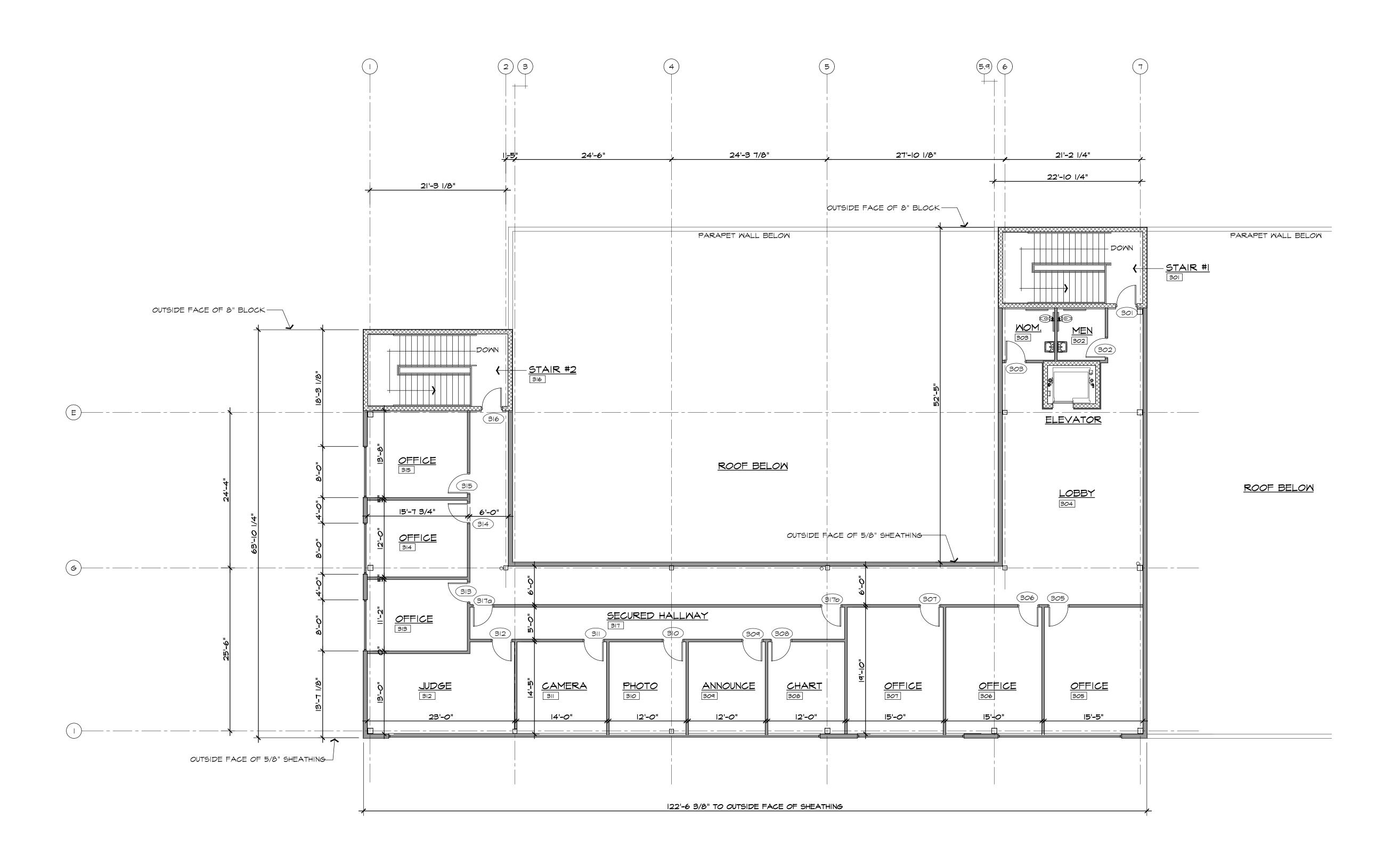
SHEET TITLE FLOOR

SHEET #

GAMING / GRANDSTAND BLDG.

USE GROUP: MIXED NONSEPARATED A-2 / A-5
 CONSTRUCTION CLASSIFICATION: IIB
 FULLY FIRE SUPPRESSED BUILDING

SCALE: 1/16" = 1'-0"



) ARCHITECT

ISSUED FOR DATE PUD REVIEW 1.16.23 3.31.23

**ARCHITECTURAL DESIGN** RESIDENTIAL

COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC 24001 ORCHARD LAKE RD., STE. 180A FARMINGTON, MICHIGAN 48336 PH: (248) 985-9101 WEB: WWW.GAVASSOCIATES.COM

DRAWN: DESIGNED: CHECKED: AV

SCALE : PER PLAN

FILE NAME :

JOB #: 22|43

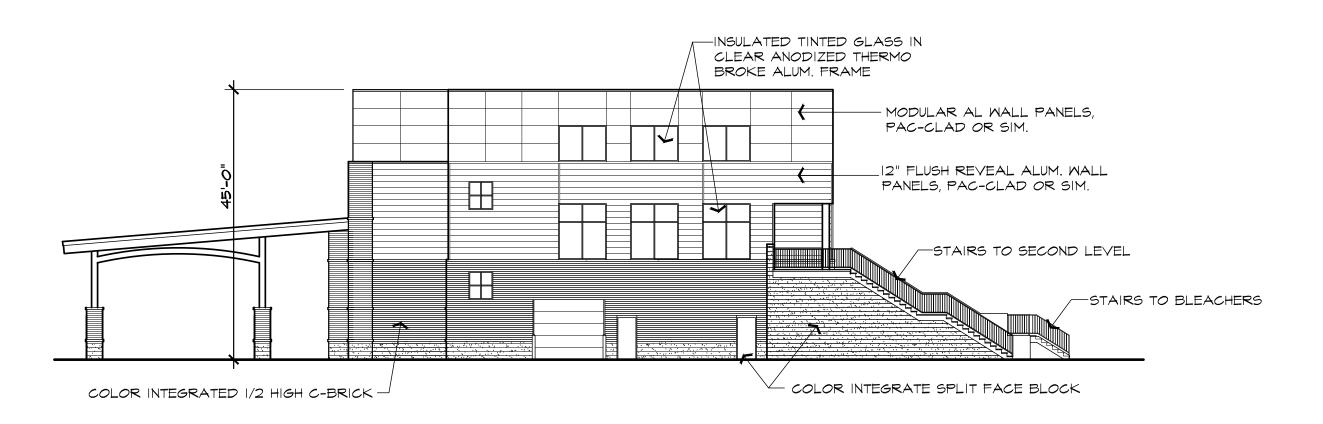
SHEET TITLE FLOOR

SHEET #

THIRD LEVEL FLOOR PLAN SCALE: 1/8" = 1'-0"

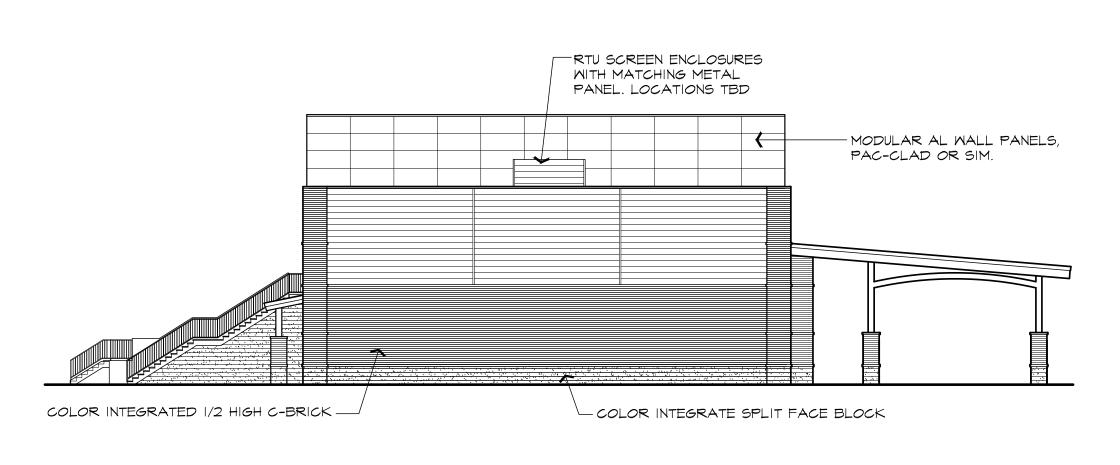
### NORTH ELEVATION

FACADE MATERIAL PERCENTAGE (GLASS NOT INCLUDED)
SPLIT FACE BLOCK: 560 S.F. = 17% SCALE: 1/16" = 1'-0" 1/2 HIGH C-BRICK: 960 S.F. = 28.5% MODULAR METAL PANEL: 800 S.F. = 24% HORIZONTAL METAL PANEL: 1,029 S.F. = 30.5%



### MEST ELEVATION

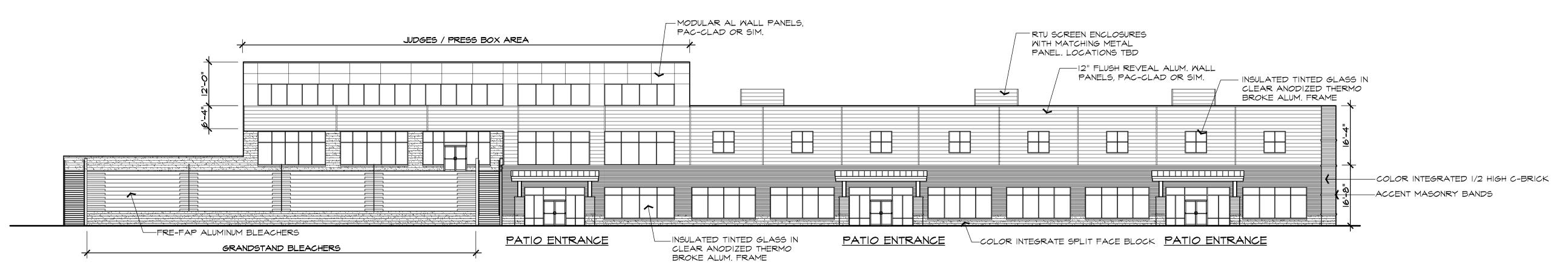
FACADE MATERIAL PERCENTAGE (GLASS NOT INCLUDED)
SPLIT FACE BLOCK: 560 S.F. = 17% SCALE: 1/16" = 1'-0" 1/2 HIGH C-BRICK: 960 S.F. = 28.5% MODULAR METAL PANEL: 800 S.F. = 24% HORIZONTAL METAL PANEL: 1,029 S.F. = 30.5%



# EAST ELEVATION

FACADE MATERIAL PERCENTAGE SPLIT FACE BLOCK: 520 S.F. = 13% 1/2 HIGH C-BRICK: 1,317 S.F. = 33% MODULAR METAL PANEL: 955 S.F. = 24% HORIZONTAL METAL PANEL: 1,200 S.F. = 30%

SCALE: 1/16" = 1'-0"



MATERIAL COLORS

GLASS TO BE SMOKE TINT

MODULAR AL WALL PANELS, PAC-CLAD "MILITARY BLUE" COLOR (BLUE-GREY) 12" FLUSH REVEAL ALUM. WALL PANELS, PAC-CLAD "CITYSCAPE" COLOR (LITE GREY) STANDING SEAM METAL ROOF "MILITARY

BLUE" COLOR (BLUE-GREY) SPLIT FACE BLOCK, FENDT BLOCK #407 LITE GREY 1 HIGH C-BRICK, FENDT BLOCK #1170 LITE GREY / LT BROWN MIX GLASS FRAME, CLEAR ALUMINUM (SILVER)

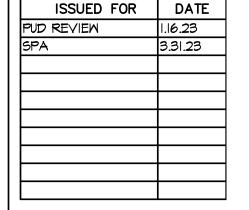
I. ALL ROOF TOP EQUIPMENT SHALL BE SCREENED FROM VISION. QUANITY AND LOCATION TO BE DETERMINED. 2. ALL PROPOSED SIGNAGE TO BE SUBMITTED UNDER A SEPARATED PERMIT

# SOUTH ELEVATION

NOTE: GRANDSTAND BLEACHERS NOT INCLUDED IN CALCULATION

SCALE: 1/16" = 1'-0" FACADE MATERIAL PERCENTAGE (GLASS NOT INCLUDED)
SPLIT FACE BLOCK: 1,015 S.F. = 14% 1/2 HIGH C-BRICK: 1,750 S.F. = 25% MODULAR METAL PANEL: 833 S.F. = 12% HORIZONTAL METAL PANEL: 3,462 S.F. = 49%

SAMIR M KARIM ARCHITECT 1301038452 GAMING / GRANDSTAND BLDG.



**ARCHITECTURAL DESIGN** 

> RESIDENTIAL COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC **24001 ORCHARD LAKE RD., STE. 180**A FARMINGTON, MICHIGAN 48336 PH: (248) 985-9101 WEB: WWW.GAVASSOCIATES.COM



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DESIGNED: CHECKED: DRAWN: AV

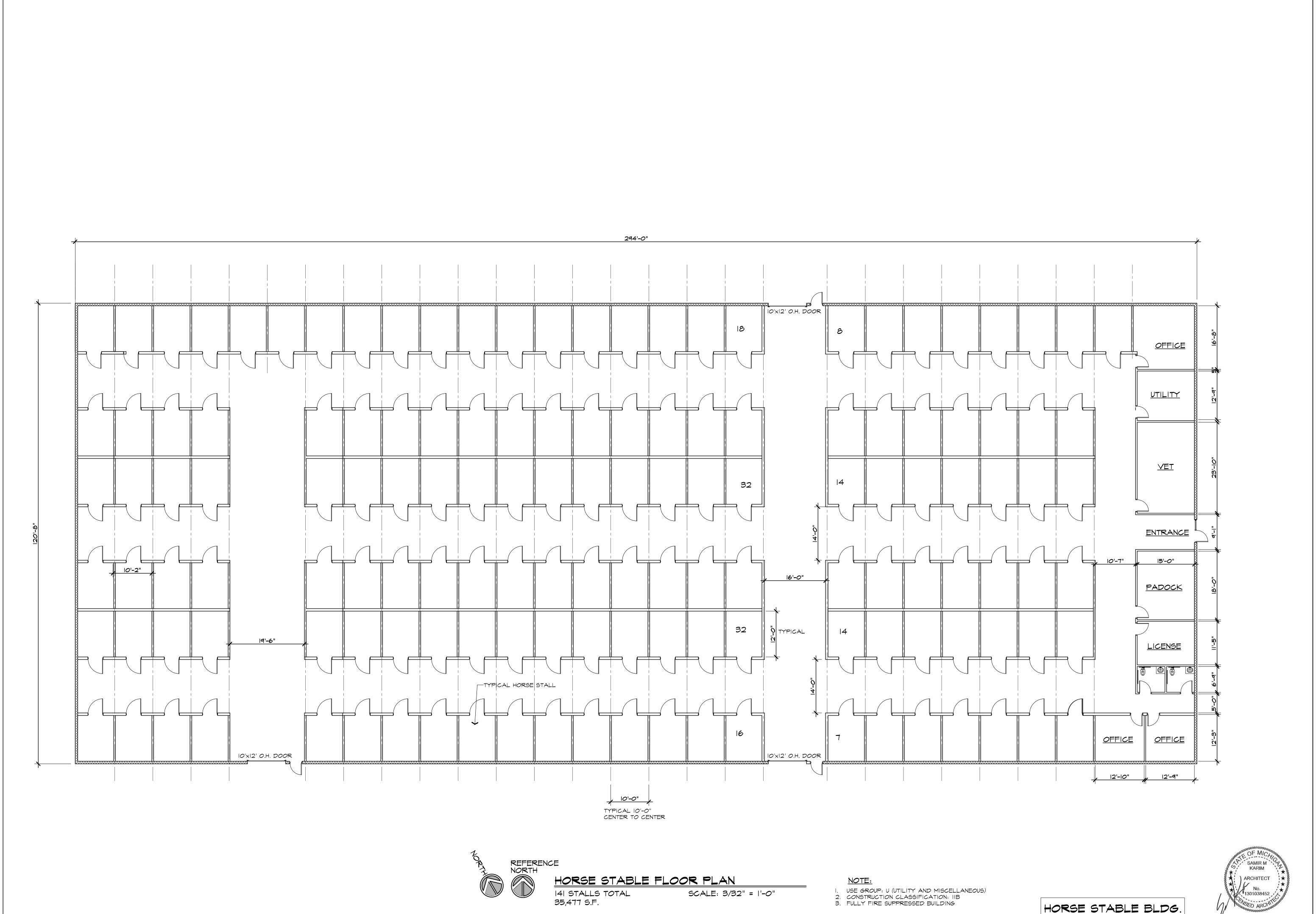
SCALE : PER PLAN

FILE NAME :

JOB #: 22|43

SHEET TITLE EXTERIOR ELEVATIONS

SHEET #



ISSUED FOR DATE PUD REVIEW 1.16.23 3.31.23

ARCHITECTURAL DESIGN

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FACILITY

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DESIGNED: CHECKED: DRAWN:

AVSCALE : PER PLAN

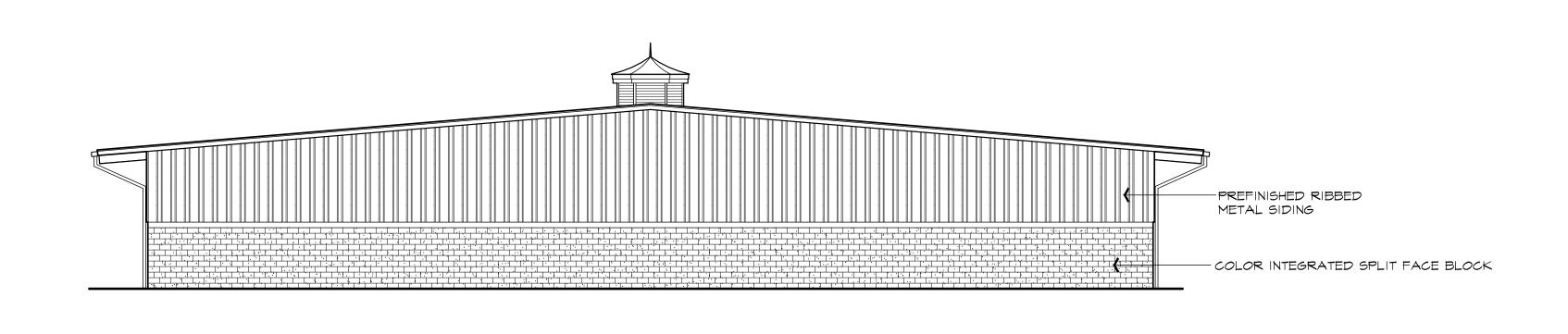
FILE NAME : JOB #: 22|43

SHEET TITLE FLOOR

PLAN SHEET #

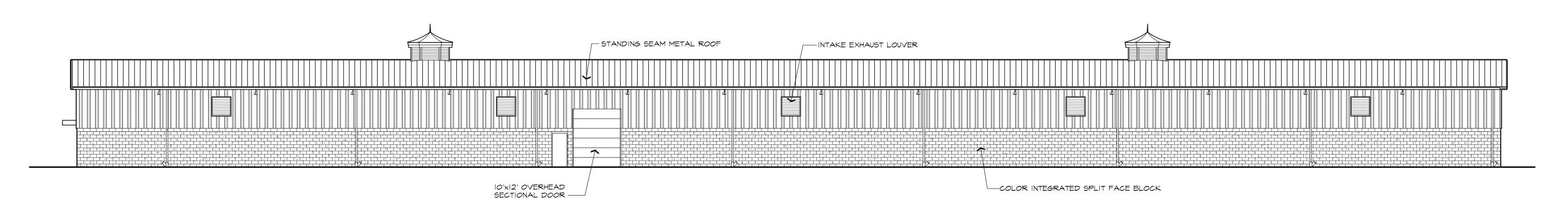






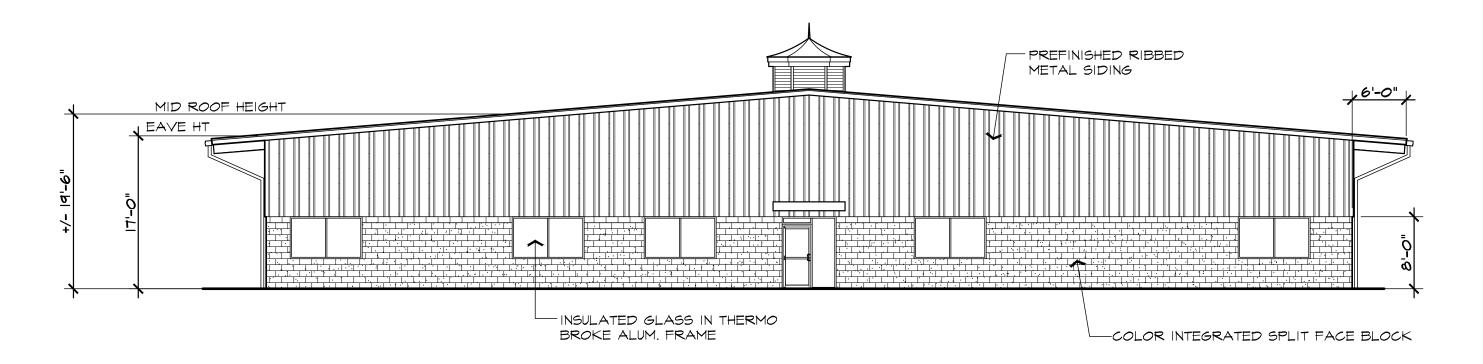
### WEST ELEVATION

FACADE MATERIAL PERCENTAGE (NOT INCLUDING WINDOWS AND DOOR)
SPLIT FACE BLOCK: 965 S.F. = 42%
MODULAR METAL PANEL: 1,330 S.F. = 58%



### NORTH ELEVATION

FACADE MATERIAL PERCENTAGE (NOT INCLUDING WINDOWS AND DOOR)
SPLIT FACE BLOCK: 2,250 S.F. = 49%
MODULAR METAL PANEL: 2,316 S.F. = 51%



### MATERIAL COLORS

METAL SIDING / TRIM, SANDSTONE (LT BROWN)

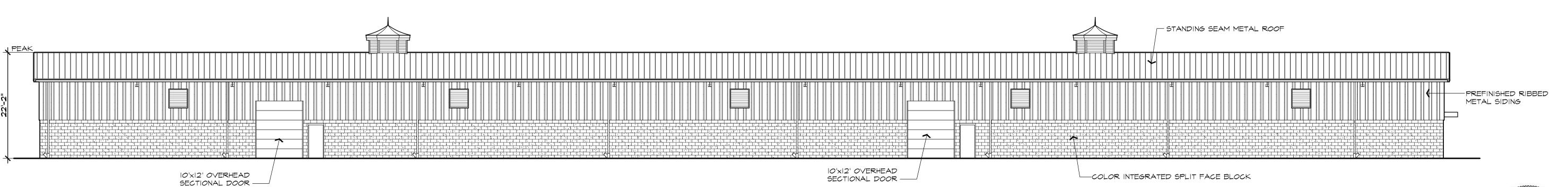
SPLIT FACE BLOCK, FENDT BLOCK, TAN (MEDIUM BROWN MIX)

GLASS FRAME, CLEAR ALUMINUM (SILVER)

GLASS TO BE SMOKE TINT

### EAST ELEVATION

 $\frac{\text{FACADE MATERIAL PERCENTAGE}}{\text{SPLIT FACE BLOCK: } 730 \text{ S.F. = } 35\%} \\ \text{MODULAR METAL PANEL: } 1,330 \text{ S.F. = } 65\%$ 



NOTE:

I. AT THIS TIME NO ROOF TOP EQUIPMENT IS PROPOSED,

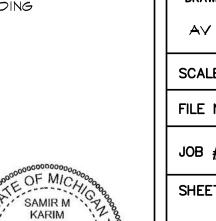
IF ANY BECOMES NECESSARY IT SHALL BE SCREENED

FROM VISION.

SOUTH ELEVATION

FACADE MATERIAL PERCENTAGE (NOT INCLUDING WINDOWS AND DOOR)
SPLIT FACE BLOCK: 2,150 S.F. = 49%
MODULAR METAL PANEL: 2,276 S.F. = 51%

HORSE STABLE BLDG.



) ARCHITECT

No. 1301038452 PUD REVIEW 1.16.23

SPA 3.31.23

ARCHITECTURAL DESIGN

ISSUED FOR

RESIDENTIAL COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC 24001 ORCHARD LAKE RD., STE. 180A FARMINGTON, MICHIGAN 48336 PH: (248) 985-9101 WEB: WWW.GAVASSOCIATES.COM



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PROPOSED STABLE FACILITY FOR:
NOTHVILLE DOWNS at PLYMOUTH TWP.

IVE MILE and RIDGE ROAD.

DRAWN: DESIGNED: CHECKED:

SCALE : PER PLAN

SCALE : PER PLAN

FILE NAME :

JOB #: 22|43

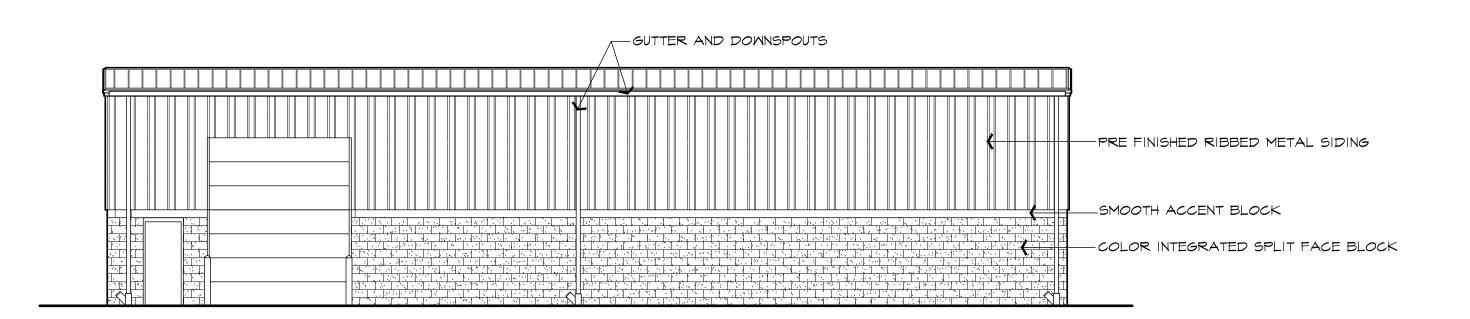
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EXTERIOR

ELEVATIONS

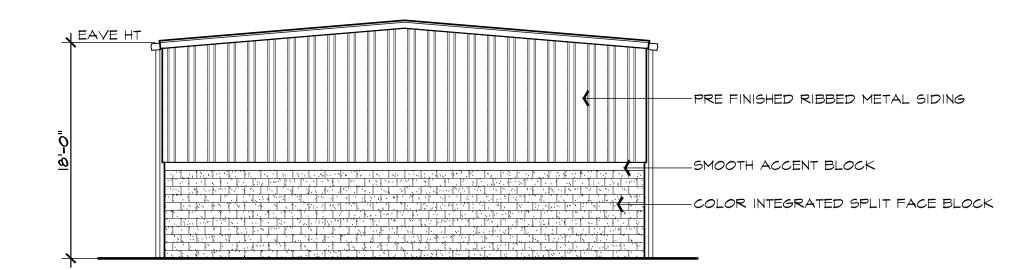
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### WEST ELEVATION

FACADE MATERIAL PERCENTAGE (NOT INCLUDING WINDOWS AND DOOR)
SPLIT FACE BLOCK: 2,150 S.F. = 49% MODULAR METAL PANEL: 2,276 S.F. = 51%

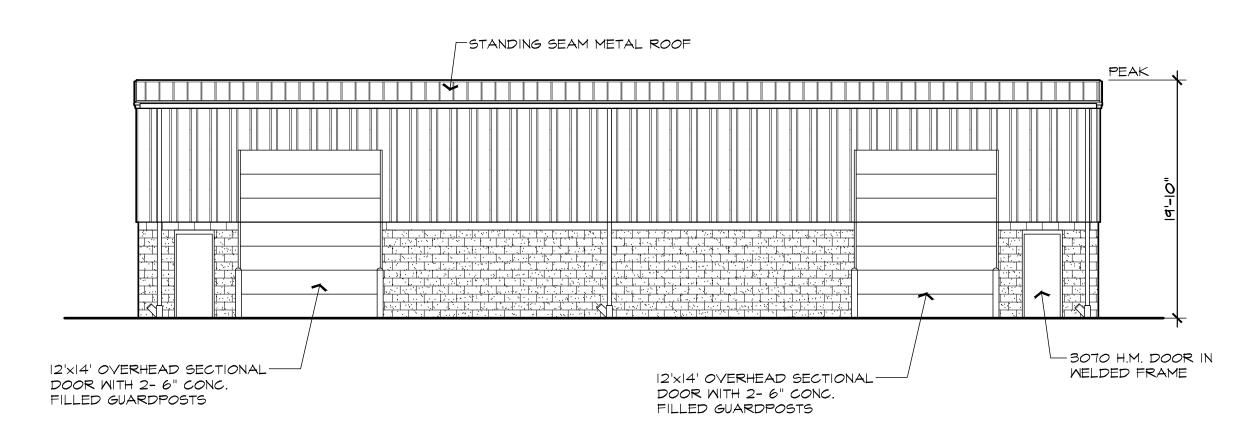


# NORTH & SOUTH ELEVATIONS

# FACADE MATERIAL PERCENTAGE SPLIT FACE BLOCK: 2,150 S.F. = 49% MODULAR METAL PANEL: 2,276 S.F. = 51%

### MATERIAL COLORS

METAL SIDING / TRIM, SANDSTONE (LT BROWN) SPLIT FACE BLOCK, FENDT BLOCK, TAN (MEDIUM BROWN MIX) OVERHEAD DOORS, LT BROWN



# EAST ELEVATION

FACADE MATERIAL PERCENTAGE (NOT INCLUDING WINDOWS AND DOOR)
SPLIT FACE BLOCK: 2,150 S.F. = 49% MODULAR METAL PANEL: 2,276 S.F. = 51%

ALL ROOF TOP EQUIPMENT SHALL BE SCREENED FROM VISION. QUANITY AND LOCATION TO BE DETERMINED.
 ALL PROPOSED SIGNAGE TO BE SUBMITTED UNDER A SEPARATED PERMIT

12'X14' INSULATED 26GA O.H. DOOR

3'-0"3'-4" 2'-0" 12'-0"

# REFERENCE MAINTENANCE BLDG. FLOOR PLAN SCALE: 1/8" = 1'-0"

39'-4"

80'-0"

EQUIPMENT MAINTENANCE / STORAGE

3,200 S.F.

 USE GROUP: S-I
 CONSTRUCTION CLASSIFICATION: IIB 3. NON-FIRE SUPPRESSED BUILDING

SAMIR M KARIM ) ARCHITECT

ISSUED FOR PUD REVIEW 1.16.23 3.31.23

**ARCHITECTURAL DESIGN** RESIDENTIAL

COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC 24001 ORCHARD LAKE RD., STE. 180A FARMINGTON, MICHIGAN 48336 PH: (248) 965-9101 WEB: WWW.GAVASSOCIATES.COM



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 ${\mathcal O}$ DESIGNED: CHECKED:

DRAWN: AV

SCALE : PER PLAN

FILE NAME : JOB #: 22|43

SHEET TITLE FLOOR PLAN

SHEET #

MAINTENANCE BUILDING

12'X14' INSULATED

26GA O.H. DOOR

12'X14' INSULATED 26GA O.H. DOOR

12'-0" 2'+0" 3'-4" 3'-0"

Division 8.

#### B. Materials

- 1. SEE NOTES AND MATERIALS AT RIGHT OF SHEET.
- 2. Backfill, Concrete, Reinforcement and Other Materials a. The materials shall meet the requirements specified in the current Michigan Department of Transportation (M.D.O.T.) Standard Specifications for Highway Construction,
  - b. Backfill shall be granular material Class II. c. Concrete for encasement shall be Grade P1.
  - d. Steel reinforcement for encasement shall be Grade 60.

#### C. Construction

#### 1. Pipe Handling

The pipe shall be distributed at the site by the Contractor as required and care shall be exercised to prevent injury to the pipe in handling. Proper tools and implements satisfactory to the Project Engineer for safely handling the pipe and other materials shall be provided by the Contractor. Pipe must be protected from falling either from truck to ground or into the trench, and when distributed along the line or stored near a road, must be kept clear of danger of damage to passing vehicles.

All materials will be inspected before placing in the trench, and if defective, marked "REJECTED", and removed from the site by

#### 2. Excavation

The Contractor shall do all the excavation required for the construction of the mains and appurtenances, including clearing of the site of the work and the removal and disposal of all materials necessary to be removed in the construction of all work under this Contract. The cost of doing such work shall be understood as being included in the Contract Unit Price per lineal foot for laying watermain.

Excavated materials may be temporarily stored along the trench, unless otherwise noted, in a manner that will not cause damage to trees, shrubs, fences, or other property, nor that will endanger the bank of the trench by imposing too great a load thereon.

Excavations shall be adequately braced and/or sheeted to prevent caving or squeezing of the soil, or disturbing existing utilities or pavement, and shall be completely dewatered prior to construction of the watermains or other structures.

Where, through the Contractor's construction procedure, or because of poor existing ground conditions, it is impossible to maintain alignment and grade properly, or provide suitable support for the pipe, the Contractor shall, at his own expense excavate below grade and replace with suitable approved material in order to insure that the pipe, when laid, will maintain correct alignment and grade.

The subgrade shall be accurately prepared to line and grade so that the pipe, when laid, shall have uniform bearing upon the approved backfill, throughout its length.

Pavement cutting, maintenance and reinstatement shall be done in a manner satisfactory to the Wayne County Department of

- a. Trench Bottom. The bottom of trench shall be excavated neatly to the required grade prior to filling with four (4) inches, or to the depth required by the detail drawing for the specific type of pipe used, of ban run sand thoroughly compacted by tamping before the pipe is laid. Blocking under pipe is strictly prohibited unless specifically ordered in writing by the Township Engineer; and, then only for each specific length of pipe in question.
- b. Sheeting, Shoring and Bracing. Excavations shall be sheeted and braced as necessary to insure substantial completion of the work and/or to insure the safety of the workmen or the public or to protect adjoining structures.

No extra compensation shall be paid the Contractor for sheeting or bracing left in place, unless ordered left in place by the Township Engineer and then only a fair salvage value for material left in place shall be paid. The Contractor shall receive no extra compensation for sheeting or bracing left in place in tunnels.

- c. Disposal of Excavated Material. With the exception of an amount of excavated materials sufficient for backfilling and construction of fills as called for on the plans, all broken concrete, stone and excess excavated materials shall be legally disposed of by the Contractor off-site. On-site disposal may be permitted by the Project Engineer.
- d. Pumping and Draining. The Contractor shall provide and maintain adequate pumping and drainage facilities for removal and disposal of water from trenches, or other excavations. The contractor shall also provide pumping and drainage facilities and shall operate same as may be necessary until construction is completed.

Where the work is in ground containing an excessive amount of water, the Contractor shall provide, install, maintain, and operate suitable well points, connecting manifolds, and reliable pumping equipment to operate same to insure proper construction of the work.

Drainage or discharge lines shall be connected to adjacent public stormwater drains or extended to nearby watercourses wherever possible. In any event, all pumping and drainage shall be done without damage to any highway or other property, public or private, property owners. If it should become necessary to lay pipe in water, the method of installation must be approved by the Township Engineer.

The Contractor shall receive no extra compensation for providing, maintaining or operating any dewatering or drainage facilities unless otherwise stated elsewhere in these specifications.

- e. Utilities Crossing. In crossing over or under any main or lateral sewer, sewer connection, catch basin, watermain, service connection, gas main, gas connection, conduit, or any underground improvement the Contractor shall use all possible care in protecting the same from injury, damage or the free unobstructed continuous use of the same as far as possible, and the contract work shall be performed in such a manner as will effect the least damage or interference with such improvements or the free and unobstructed use of the same. The Contractor will be required, without any additional compensation, to repair, replace or rebuild any such improvement injured or damaged by him, and shall be responsible to the department, companies, individuals, or corporations controlling such improvements.
- f. Soil Erosion and Sedimentation Control (SESC) Measures. Whether SESC permit is required or not, the owner shall be responsible to see to it that appropriate SESC measures are provided and properly maintained at all times during construction up to time the site is completed and stabilized.

#### 3. Laying Pipe

Before lowering in the trench, and while suspended, each pipe and fitting shall be inspected for defects and rung with a light hammer to detect cracks. Defective, damaged or unsound pipe shall immediately be removed from the construction site. The interior of each pipe shall be inspected for cleanness and cleared of all dirt and foreign matter before being lowered into the trench.

Unless otherwise directed, pipe shall be laid with bell ends facing in the direction of laying. After a length of pipe is placed in the trench, the spigot shall be centered in the bell of the adjacent pipe, the pipe shoved into position and brought to a true alignment and there secured with sand tamped under and on each side of the pipe, excepting at bell holes. No earth or other foreign matter shall be allowed to enter the joint space.

When the temperature is above 60 degrees F., the spigot of each pipe laid shall be brought tightly home in the bell of the preceding pipe. When the temperature is below 60 degrees F. the pipe shall be laid with the spigot end approximately 1/16 inch from the face of the bell to allow for expansion.

Wherever deflections at joints are required by changes in grade or alignment or to plumb valve stems, the deflection at any bell and spigot joint shall not exceed that which will cause the spigot end of pipe to be away from home in the bell of the adjacent pipe a distance of 1/4 inch at the point of greatest opening. The deflection at any mechanical joint shall not exceed three-quarters of the maximum deflection recommended by the manufacturer of the joint used.

Where necessary to cut pipe, cutting shall be done with approved tools and cut ends of pipe shall be square and regular. Cutting shall be done in a manner to avoid damage to lining and

To prevent trench water from entering the pipe, joints which for any reason may not be completed as the pipe is laid shall be thoroughly packed with approved material, in a manner to make them watertight. Open ends of fittings shall be tightly closed with approved plugs and well packed as shall the end of the last pipe laid whenever work is not in progress.

Tools or other objects shall not be stored or left in the pipe.

Pipe shall be laid at depths to provide cover of 6 ft. 0 inch over the top of the pipe unless otherwise noted on the plans or elsewhere in these specifications.

#### 4. Tunneling or Boring

When tunneling is required by the Wayne County Department of Public Services or is specified on the plans, said tunneling shall be in accordance with the current Wayne County Department of Public Services Requirements for Construction within Road Right of Way or Parks under Jurisdiction of the Board (Revised August 1, 2007).

When tunneling by jacking or boring, all voids shall be filled by means of pressure grouting with a 1:3 cement—sand mortar. This work must be accomplished within 24 hours after the conduit crossing has been completed. The tunneling shall extend a minimum of 10 feet outside the edges of the county road pavement. Pressure grouting will not be required for casings four (4) inch in diameter or smaller unless the voids are one (1) inch or larger.

#### 5. Thrust Blocks

Concrete thrust blocks shall be placed at all 22-1/2 degree bends, or greater, dead-ends, fittings, "tee's", hydrants and at crosses where required by the Township Engineer.

Thrust blocks shall be placed to bear on undisturbed soil.

In unstable soil conditions, the thrust blocks are to be supported by removal of the unstable soils and replacement with ballast of sufficient stability to resist the thrusts. All thrust blocks shall be approved by the Township Engineer before backfilling. Where retaining glands and/or threaded rods are used to restrain a joint thrust blocks must also be employed.

### 6. Backfill

Backfill is defined as that material placed into the trench from the top of the standard pipe bedding (as shown on Trench "A" detail in Sheet W-2) to the ground surface. Backfill shall be placed into the trench according to one of the following specified manners as determined by the location of the trench or the edge of trench nearest the existing pavement, roadway, sidewalk, driveway or parking area.

Wherever compaction is required, it shall be accomplished by suitable mechanical compaction equipment approved by the Township Engineer. Frozen backfill materials are not permitted under any circumstance whatsoever.

### a. Under or Adjacent to Pavement

Trench Location 1) Under existing or proposed pavement

Backfill shall be full depth mechanically compacted MDOT Class II granular material constructed in six (6) inch layers, loose measure with each laver compacted to not less than 95 percent of maximum unit weight at

Backfill Requirements

optimum moisture

A.A.S.T.H.O.-180 or by

M.D.O.T. Cone Density

content per

2) Parallel to and less than five (5) feet from edge pavement

3) Parallel and less than Selected excavated or ten (10) feet and more other acceptable backfill than five (5) feet materials shall be placed.

from edge of pavement after standard bedding called for on plan has been completed, into trench in six (6) inch layers, loose measure, with each layer compacted to not less than 90 percent of maximum unit weight. Backfill material used must provide compaction meeting requirements stated

- b. Open Space Areas. All trenches in open space areas shall be backfilled by properly bedding the pipe according to the pipe bedding details and then shall be backfilled by spreading backfill material over the trench and mechanically compacting to 90 percent of maximum unit weight. Contractor shall regrade as necessary during the life of the contract and as directed by the Township Engineer.
- c. Special Backfill, where called for on the plans or where required by road permits, the Contractor shall backfill trenches and/or other excavation with the specified material placed into the trench or excavation in six (6) inch deep layers, loose measure, with each layer compacted in accordance with the requirements of said plans or road permits before the succeeding layer is

d. Backfill. Backfill shall not be placed against any portion of a structure until the structure has passed inspection and has been approved by the Township Engineer for backfilling. All trenches should be backfilled as soon as inspection is completed in order to avoid unnecessary risk or damage to the structure and also to reduce the risk of accidents involving the public.

If a bulldozer or other machine is used to place the backfill material, no material shall be pushed or dropped into the trench, but shall be placed on the sloping ends of the completed backfill, and allowed to roll in place to the bottom of the trench.

#### 7. Gate Wells and Valves

Gate wells shall be constructed as shown on the watermain standard detail plans. Covers shall be set to finish grade.

Gate valves shall be of the size and installed at the location as shown on the plans. They shall be set square with the line of the main, and unless otherwise directed by the Township Engineer, all gate valves shall be set with stems plumb. At each side of each gate valve installed the Contractor shall furnish and install on the main a corporation stop as shown on the detail drawing.

#### 8. Hydrants

Hydrants shall be located as shown on the plans, and shall be set plumb. The hydrant and valve shall be set as indicated on the standard detail drawing and to the finish grade called for on the plans.

#### 9. Concrete Encasement

Encasement shall be formed of approved materials where job conditions require form work above the top of the trench.

Whenever the drawings show the pipe to be encased in concrete, a mud mat may be poured first, at the option of the Contractor, or when directed by the Township Engineer. In any event, where a mud mat is used, the thickness of the mat shall be in addition to the total depth of the encasement.

Encasements shall be constructed to bear on undisturbed earth.

All steel reinforcement shall be accurately placed in the positions shown on the plans and firmly held during the placing of concrete. Lap all bars 30 bar diameters, minimum 12 inches. Field bending as required shall be done cold. Tie all bars in place before concreting.

Place concrete in a dry trench. When trench is wet, use the tremie method. Place concrete uniformly across the width of encasement and from end to end. Vibrating to consolidate concrete is required using due care to minimize aggregate segregation.

#### 10. Connections

All connections to existing water mains shall be made at the locations as shown on the plans.

No connections to existing water mains shall be made until after the new main has passed the bacteriological and hydrostatic tests and the Township DPW authorizes same.

Only Plymouth Township personnel or the Contractor under direct Plymouth Township personnel's supervision may operate line valves.

All materials used at the final connection are to be clean and

### D. Testing

### 1. Water mains

sanitized.

### a. Hvdrostatic tests

The Great Lakes Water Authority and the Plymouth Township Engineer shall be notified and be present to witness the hydrostatic test.

Temporary blow, caps, or plugs shall be provided at the ends of the new main to permit testing.

Water mains shall be leakage and pressure tested in accordance with the AWWA Standard C600. Prior to testing, mains shall be appropriately flushed in accordance with C600.

No hydrostatic testing may be performed until trench backfield compacting has been successfully completed and compacting test reports have been furnished to the Township Engineer.

### b. Chlorinating

After satisfactory hydrostatic test is obtained, the new main shall be chlorinated. Chlorine shall be applied by means of a solution through a corporation stop at the beginning of the main. A slow flow of water shall be let into the main approximately at the point of injection of the chlorine solution, at a rate such that the chlorine dosage of the entering water shall be at least 25 parts per million (ppm). An open discharge shall be maintained at the far end of the main, and the introduction of chlorine solution and water shall continue until the water discharging at the far end shall be opened and sufficient water drawn off to assure that the full dosage of chlorine reaches each outlet.

The chlorine treated water shall remain in the main at least 24 hours, and at the end of that time the chlorine residual at pipe extremities and other representative points shall be at least 10 ppm. If the chlorine residual is less than 10 ppm at the end of the retention period, repeat until the required 10 ppm residual is obtained.

Following chlorination, all treated water shall be thoroughly flushed from the main until the replacement water throughout its length shall, upon test, both chemically and bacteriologically, be proven equal to the water quality in the source water supply system and

The Contractor must notify the Township Engineers, Spalding DeDecker (248-844-5400), to schedule a bacteriological sampling and testing. The testing must be scheduled 48 hours in advance. Two consecutive samples will be taken, 24 hours apart.

Samples will be taken for every 1,000 feet of watermain and dead-end lines.

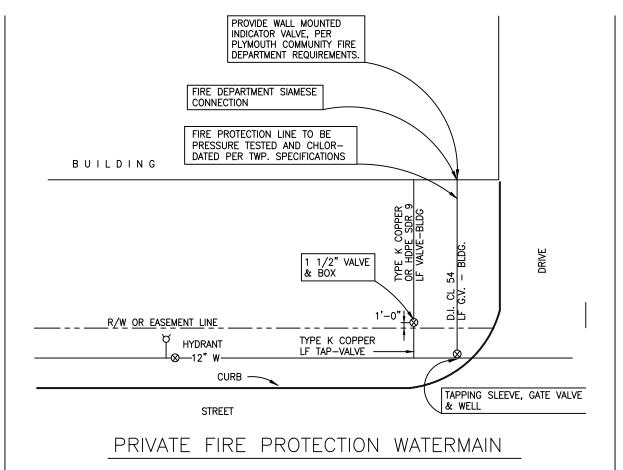
Should the initial treatment of all or any section of the main, in the opinion of the Township Engineer, prove ineffective, the chlorination procedure shall be repeated until confirmed tests show that water sampled from the new main conforms to the foregoing requirement.

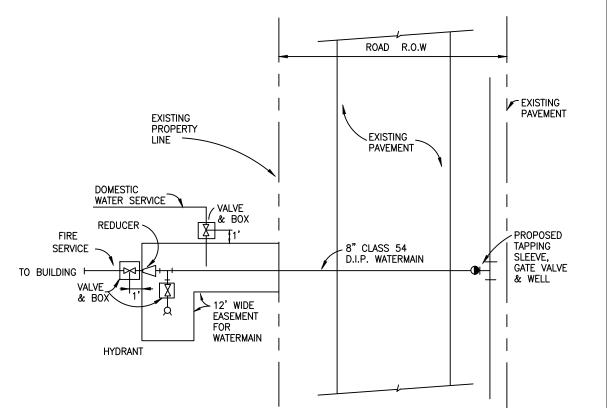
Final watermain connections to the public system will not be allowed until written authorization is provided to the Plymouth Township Engineer.

Cost for sampling and testing will the responsibility of the contractor. If inspection fees are in arrears, no testing will be scheduled.

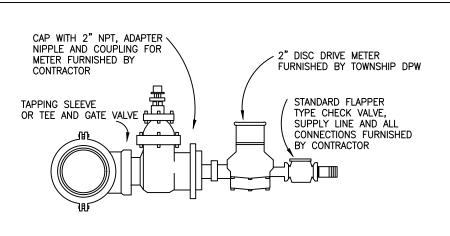
#### 2. Testing and Inspection of Pipe Materials and Backfill Compaction

- Manufacturers' test certificates shall accompany all pipe shipments and shall be provided to the Township Fnaineer.
- b. Where watermain is constructed in easement and paved areas not in public rights of way, the testing shall be performed by an independent testing laboratory and the cost of services performed shall be paid for by the Contractor. Compaction testing shall be one test per layer per 50 feet of trench.





BUILDING FIRE SERVICE AND DOMESTIC WATER SUPPLY DETAIL



GATE VALVE METER ASSEMBLY

NOTE: PERMIT FROM DPW IS

METER AND

CHECK

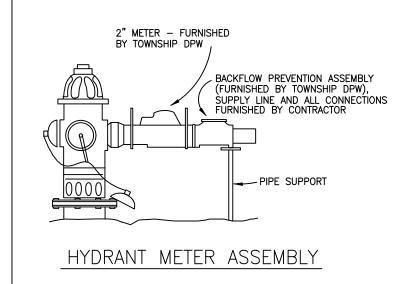
VALVES

REQUIRED

FOR ALL

WATER

CONSTRUCTION



TEMPORARY METER CONNECTIONS

#### FIRE PROTECTION

- PRIVATE FIRE PROTECTION WATERMAIN NOTES FOR CONSTRUCTION & TESTING A. Private fire protection watermain is that watermain lying outside the
- easement or right of way limits and is not included in the State permit. Private fire protection watermain is a private line for fire protection only. No domestic water service is allowed from this line, and all maintenance
  - is the property owner's responsibility. Private fire protection watermain shall be installed under the inspection
- of the Township Engineer. Contact Township Engineer, Spalding DeDecker, telephone number (248) 844—5400 forty—eight (48) hours prior to starting construction.
- Private fire protection watermain shall be pressure tested and disinfected according to the requirements on the Plymouth Township
- The Contractor is responsible for providing, and paying for, testing for standard pressure tests to 200 psi, chlorine residual, and bacteriological testing by a qualified private laboratory. Test results shall be reported to the Township Engineer, Spalding DeDecker.
- Private fire protection watermain shall not be connected to the existing main until satisfactory test results have been obtained and reported and the Township DPW manager authorizes same.
- G. Private fire protection watermain shall be ductile iron pipe class 54.
- Backflow prevention assembly is required to be installed prior to hydrant use for the protection of the drinking water distribution system.
- I. An appropriate backflow prevention device is required where the fire protection connects to the public water supply in accordance with the current Michigan Plumbing Code and the Plymouth Township cross connection control program.

#### WATERMAIN NOTES AND MATERIALS

- 1. All workmanship, materials, and testing shall be in accordance with the current standards and specification of the Plymouth Charter Township and GLWA. (Great Lakes Water Authority).
- 2. Watermain shall be ductile iron, Class 54 with double thickness cement lining, meeting all requirements of the current ANSI/AWWA Specification A 21.51/C151. Pipe shall be seal coated with an approved bituminous seal coat in accordance with ANSI/AWWA specification A21.4/C-104
- 3. Joints for ductile iron watermain shall meet all requirements of the current ANSI/AWWA Specification C111/A21.11 and shall be James G. Clow and Sons, Inc. "Super Bell-Tite", U. S. Pipe and Foundry Co., "Tyton Joint" or approved eaual.
- 4. Polyethylene wrapping will be required for any watermain which will be laid in soils which exceed the corrosive rates of gray and ductile/cast iron pipe. The current requirements of ANSI/AWWA specification C105/A21.5 apply
- 5. Bolts for bolted joints, hydrants, valves and fittings shall be high-strength, low alloy steel COR-TEN Bolts, conforming to A.S.A. A21. 11-6.4 Standard Specifications.
- Watermain and hydrant gate valves shall be EJIW Metal Seated Gate Valves opening to the right, conforming with AWWA C500 for metal seated valves and C509 for a resilient seated per current standards. Gate well covers shall be EJIW 1040 in paved areas and EJIW 1110 in landscaped areas, bearing lettering "Department of Water Supply". An allowable alternate valve is Mueller Resilient Seat Gate Valves.
- 7. Fire hydrants shall be either: The East Jordan Iron Works, Midwest 5BR-250 5 1/4", with breakaway flange; or the Mueller Super Centurion 200, Model A-425, 5 1/4" two way. All hydrants shall be six (6) feet bury, six (6) inch mechanical joint shoe, I-1/8" pentagon operating nut (point to flat) and capnuts open left, two pumper nozzles, one (1) 3 3/4" (I.D.) Detroit Standard thread pumper connection and one (1) 5" storz fitting pumper connection painted red.
- 8. Place thrust blocks of poured concrete (2500 psi) at bends, tees and hydrants as shown on the Standard Detail sheets.
- 9. Provide a minimum of 18 inch vertical clearance between watermain and storm or sanitary sewers or replace the sewer section with Watermain pipe as specified above. The crossing shall be centered over one water main pipe length so the joints are as far from the sewer pipe as possible.
- 10. Watermains shall have six (6) feet of cover from finish grade. Grade stakes at maximum 100 foot intervals are required. When watermains 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.
- 11. All trenches under or within five (5) feet of the existing and/or proposed pavement shall be backfilled to grade with thoroughly compacted MDOT Class II granular material. The backfill shall be placed in six (6) inch layers with each layer compacted by an approved mechanical method to 95% of maximum unit weight as determined by the AASHTO T-180 or the Michigan Dept. of Transportation Cone Density testing method.
- 12. Standard pipe bedding shall conform to WCDPS "Trench B" requirements. 13. No connections to existing watermains shall be made until after the new main has passed the bacteriological and hydrostatic tests and the
- Township DPW manager authorizes same. 14. New mains must be tested at a pressure of 200 pounds per square inch for not less than two (2) hours, with leakage not to exceed the rate as specified in AWWA Standard C600. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

#### $L = SD (P)^{1/2} / 148,000$ L = allowable leakage, gallons per hour = length of pipe tested, feet

- = nominal diameter of the pipe, inches P = average test pressure during leakage test, pounds per square inch (gauge) 15. Hydrostatic pressure tests shall be witnessed by the Township Engineer.
- 16. New or repaired watermains shall be disinfected in accordance with AWWA Standard C651 before they are placed in service. Mains must be flushed before disinfection. Before placing mains in service, 2 consecutive samples shall indicate the absence of coliform (R325.11110 of administrative rules promulgated under Michigan Safe Drinking Water Act, Act 399 of 1976, as amended).
- 17. It shall be the Contractor's responsibility to verify and/or obtain any necessary information regarding the presence of underground utilities on the project.

Contractor shall provide 48 hours notice to the Township Engineer

- 18. Contractor shall call MISS DIG at (800) 482-7171 at least three (3) working days prior to construction. Contractor shall be responsible for any damage done to any existing utility during construction.
- 19. Only Plymouth Township personnel or the Contractor under Plymouth Township's direct supervision may operate existing line valves. 20. Contractor shall notify the Township Engineer two (2) working days prior to start of construction or testing of watermains. Contact
- Spalding DeDecker at (248) 844-5400. 21. Hydrants in paved areas shall be protected by four 4-inch steel pipe posts -
- concrete filled embedded four feet, exposed three (3) feet and painted yellow. 22. A pre-construction meeting shall be scheduled two weeks prior to expected start of construction, with the Township Engineer, Township Department of Public Works, Building Department, Plymouth Community Fire Department. The owner, Contractor and Project Engineer shall contact Spalding DeDecker
- 23. Restrained joints may be employed only if used in conjuction with thrust blocks. 24. Hydrants shall comply with AWWA Standard C502. Hydrant weep holes shall
- 25. Pipe fittings shall comply with AWWA Standards C110 and C153. Pipe joints shall comply with AWWA Standards C111 and C115.
- 26. Pipe material shall meet the NSF/Ansi Standard 61 requirements and its certification shall be stamped on the exterior wall of the pipe.
- 27. Horizontal separation of 10 feet minimum shall be maintained between watermains and sanitary/storm sewers and private utilities, measured from outside of pipes.
- 28. Restoration of any existing hard surface area, of any type, required as a result of removal of existing surfacing by Plymouth Township forces or agents during the course of maintenance of water main or sanitary sewer located under pavement, is the responsibility of the owner of this site and will not be performed by, nor paid for by Plymouth Township.

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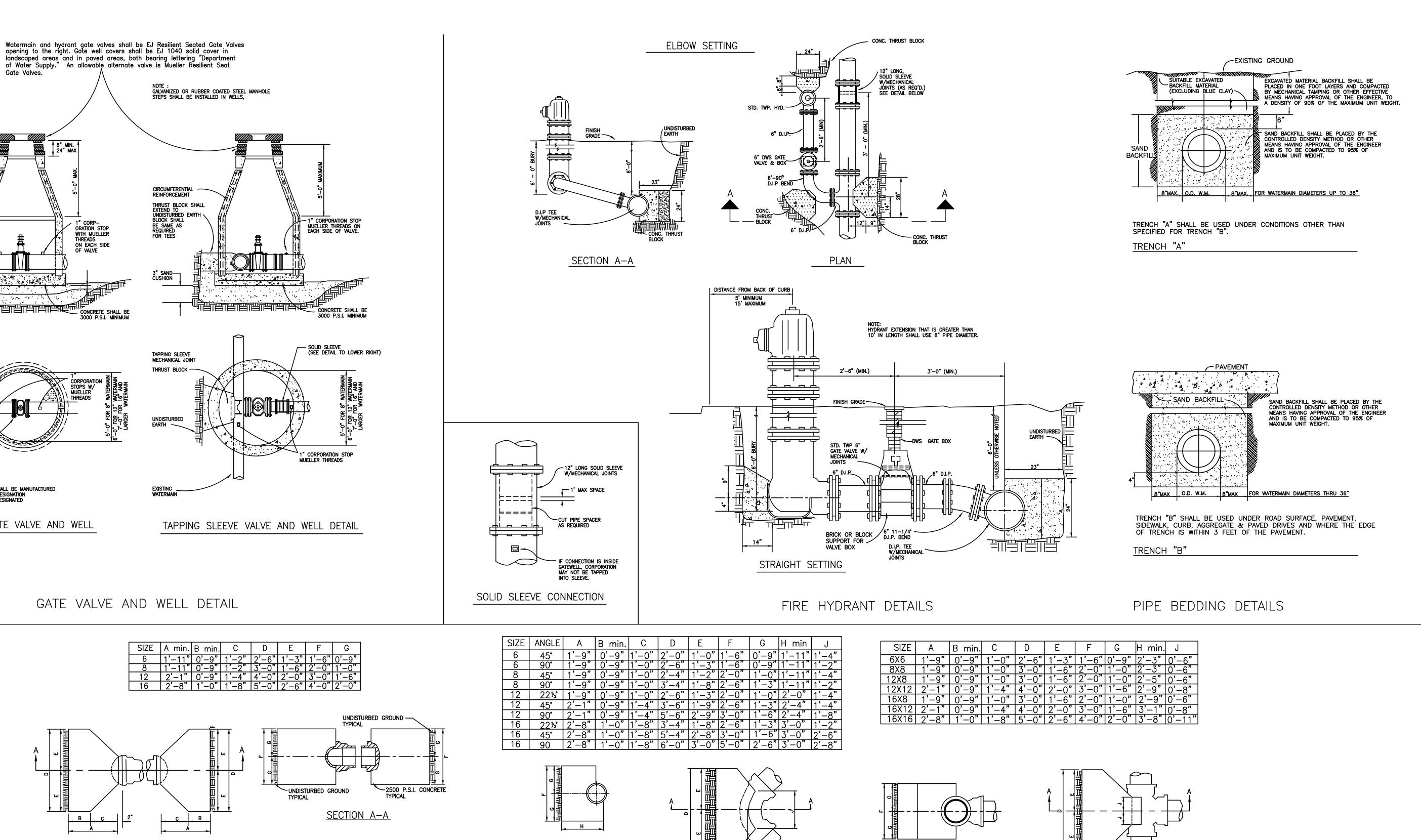
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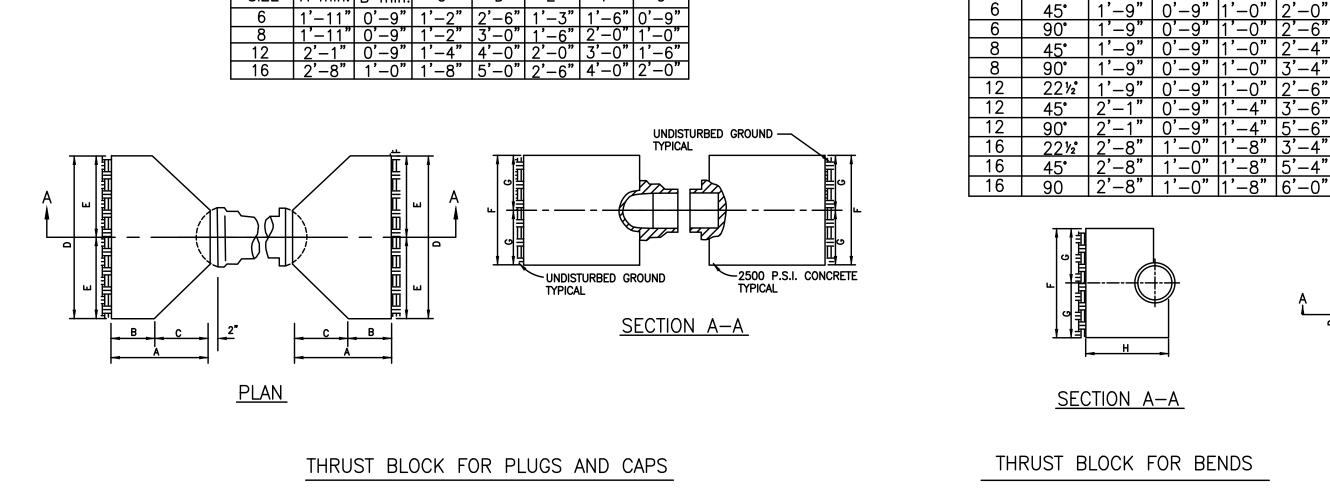
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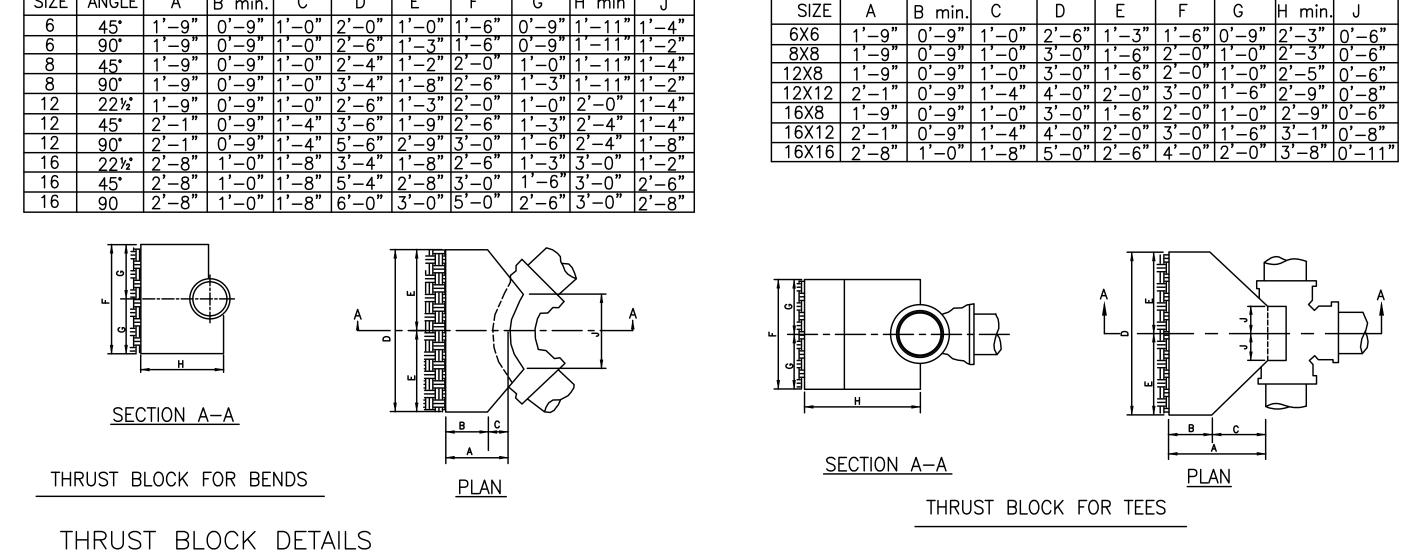


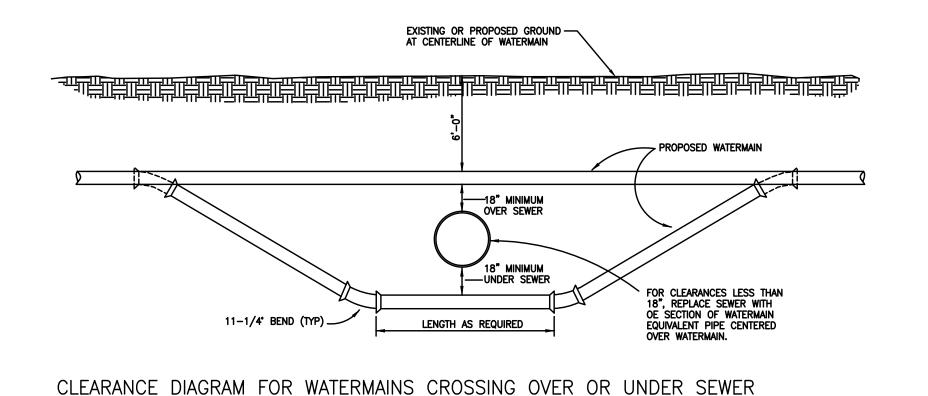
AND,

S









TO BE PLASTERED WITH MORTAR

AFTER SETTING GATE WELL

**CIRCUMFERENTIAL** 

REINFORCEMENT

MORTAR JOINTS

3" SAND— CUSHION

HOLE TO BE FILLED W/BRICK & MORTAR AROUND PIPE

NOTE:
PRECAST MANHOLE SECTIONS SHALL BE MANUFACTURED
IN ACCORDANCE WITH A.S.T.M. DESIGNATION
C478-18 UNLESS OTHERWISE DESIGNATED

PRE-CAST GATE VALVE AND WELL

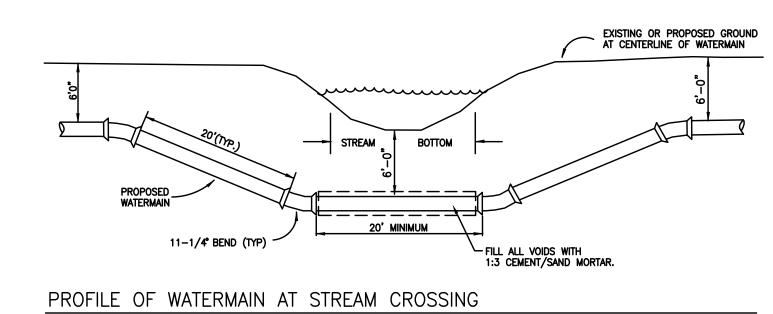
LIFT HOLES TO BE-

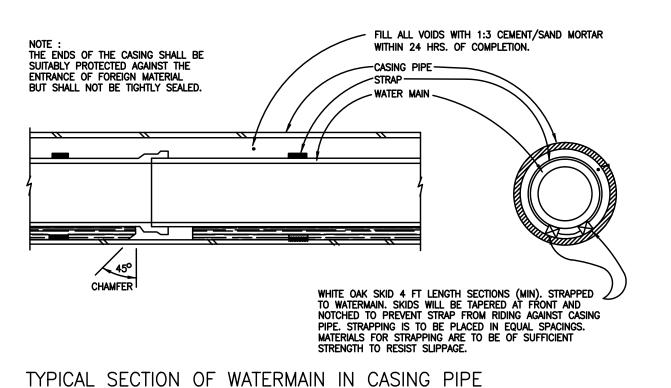
CIRCUMFERENTIAL

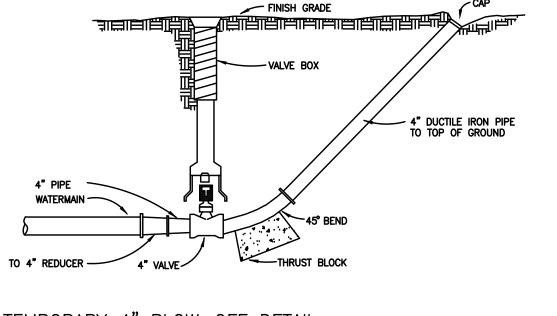
THRUST BLOCK SHALL EXTEND TO UNDISTURBED EARTH SLOCK SHALL BE SAME AS REQUIRED FOR TEES

REINFORCEMENT

ORATION STOP WITH MUELLER THREADS ON EACH SIDE







TEMPORARY 4" BLOW-OFF DETAIL

TYPICAL SECTION OF WATERMAIN IN CASING PIPE

#### WATER SERVICE PERMITS AND NOTICES

- A. Before installation of any water service between the curb stop or gate valve and the proposed structure, the contractor shall obtain a plumbing permit from the Plymouth Township Building Department at (734) 354-3210.
- Before any work may be started, there must be a water agreement paid in full on file in the Plymouth Township Department of Public Works.
- C. An inspection of the installation of the tap, service line in the right-of-way or easement, and curb stop and gate valve by the Plymouth Township Department of Public Works is required. Two (2) working days notice shall be provided prior to beginning any construction. Contact Plymouth Township Department of Public Works at (734) 354-3270.

#### WATER SERVICE INSTALLATION

- A. Taps shall be made after the watermain has successfully passed a bacteria and pressure test and the connection to the Plymouth Township system is completed. The tap shall be made at a right angle to the watermain. The tap shall be made on the upper half of the main at a 45 degree angle from the vertical place on the side of the main to which service is to be extended.
- B. A curb stop valve shall be inserted on the service at one (1) foot inside the property line or one foot outside the easement line. A curb box shall be installed vertically over the valve so that, after the service is backfilled to final grade, a key may be placed on the valve and it may be operated easily.
- C. In order to insure that no rocks will be placed over the pipe, the first foot of cover over the pipe shall be placed by hand. The remainder of the trench shall be backfilled in a manner suitable to the Township. No debris or boulders over two (2) inches shall be included in any of the backfill material.
- D. Any portion of the service that will be beneath pavement shall be mechanically compacted to the subgrade elevation. Trenches outside of paved areas shall be compacted in a manner to avoid settlement.
- E. All services shall be a minimum of five (5) feet below final grade.

### WATER SERVICE APPROVED MATERIALS LIST

#### A. Service Connections

- 1. 4 inches or larger a. Ductile or cast iron tee
- b. Tapping sleeve 2. 1-1/2 inch or 2 inches
- a. Corporation Mueller No. H—15000 or equal
- 3. 1 inch or smaller a. Installed by the Plymouth Township Department of Public Works

### B. Service Line

- 1. 4 inch or larger a. Ductile Iron
- 2. Smaller than 4 inches a. Copper – type "K"
  - b. HDPE from valve box/curb stop to building (note: portion from public main to valve box/curb stop is required to be copper)
    - Shall be of SDR 9
    - Rated for use at pressure class of 250 psi Meet requirements of AWWA C901
    - Meet requirements of ASTM D3550 and shall have min. cell classification of PE445474C Meet the following pipe color identification requirements:
    - a) Stripes or colored exterior pipe product shall be blue for potable water b) Permanent identification of piping shall be provided by co-extruding multiple equally spaced color stripes into the pipe outside surface or by solid colored pipe shell
    - c) The Striping material shall be the same material as the pipe material except for the color d) Plain Black HPDE Pipe without color code markings may not be used
    - vi. Include trace wire; trace wire shall terminate above the ground at the point where the wire enters

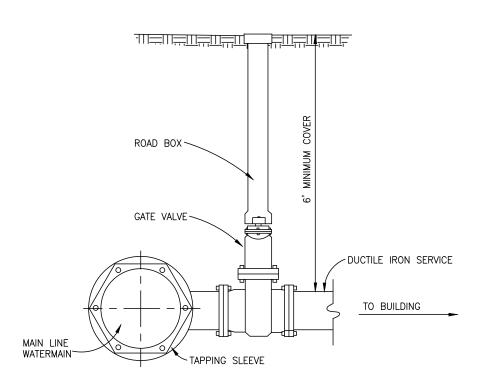
#### C. Saddle 1. Mueller bronze double—strap No. CC thread or equal

### D. Union

- 1. Mueller Brass No. H-15405 or H-15400 or equal
- E. Curb Stop
  - 1. 4 inch or larger East Jordan gate valve opening to right
  - b. Mueller gate valve opening to right or equal
  - 2. Smaller than 4 inch a. Mueller No. H-15200 Oriseal or equal

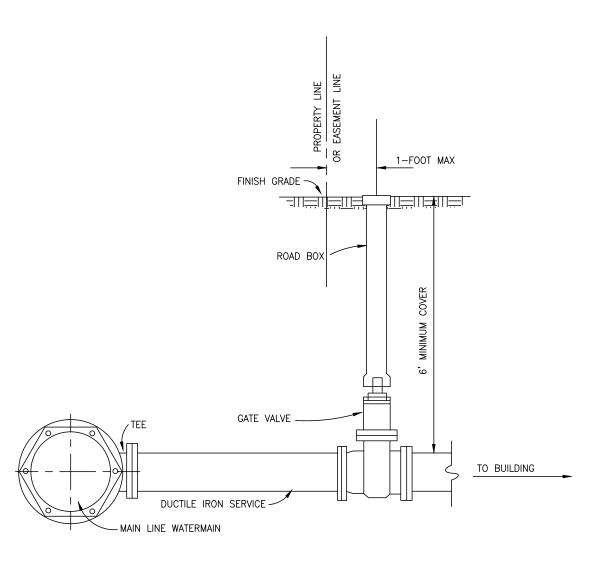
### F. Curb Box

- 1. 4 inch or larger
- East Jordan cast iron no plastic b. Approved equal cast iron — no plastic
- 2. Smaller than 4 inch
- a. Mueller No. H-10386 with Rod No. 84140 or equal



#### TAPPING SLEEVE CONNECTION 4 INCH OR LARGER WATER SERVICE

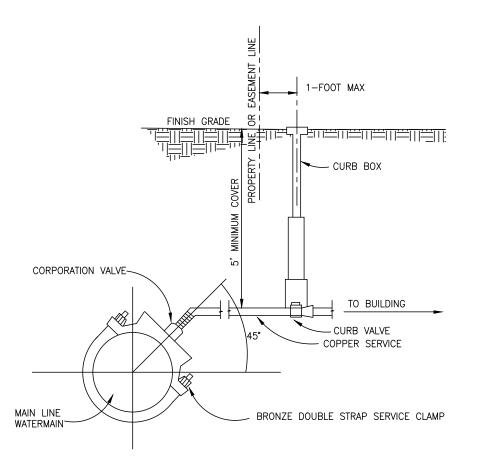
(INSTALLATION BY CONTRACTOR)



# TEE CONNECTION

(INSTALLATION BY CONTRACTOR)

4 INCH OR LARGER WATER SERVICE



### 1-1/2 INCH OR 2 INCH WATÉR SERVICE CONNECTION

(INSTALLATION BY PLYMOUTH TOWNSHIP)

SERVICE CONNECTION DETAILS

### SANITARY SEWER SERVICES

#### SANITARY SEWER SERVICE PERMITS AND NOTICES

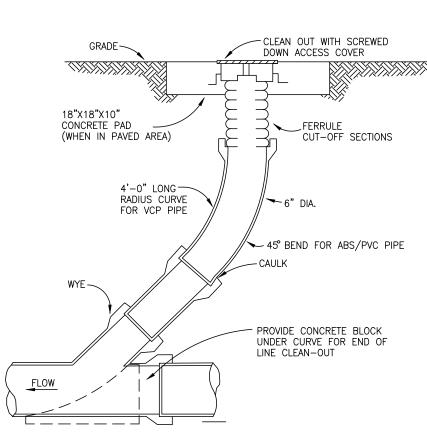
- A. Before installation of any sanitary sewer service to the proposed structure, the Contractor shall obtain a plumbing permit from the Plymouth Township Building Department at (734) 354-3209.
- B. Before any work may be started there must be a sanitary sewer agreement paid in full on file in the Plymouth Township Department of Public Works.
- C. An inspection of the installation of the tap and service line in the right—of—way or easement, by the Plymouth Township Department of Public Works and the Building Department is required. Two (2) working days notice shall be provided prior to beginning any construction. Contact Plymouth Township Department of Public Works at (734) 354—3270 for the tap inspection and Plymouth Township Building Department at (734) 354—3209 for the service line inspection.

### SANITARY SEWER SERVICE APPROVED MATERIALS

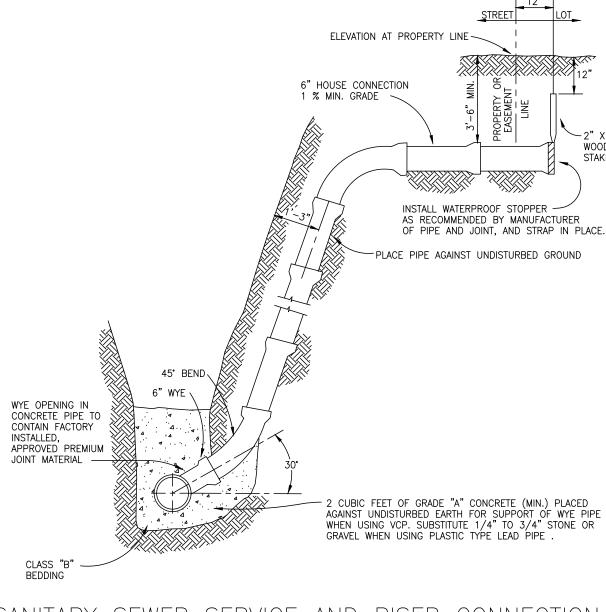
- A. Extra strength clay pipe: Vitrified Clay Pipe shall conform to ASTMC700 Specifications. House leads shall conform to this specification. Joints are to be ASTM 425 Type I or Type III, "O" Ring Wedgelock, or equal.
- B. Acrylonitrile—butadiene—styrene (ABS) composite sewer pipe and fittings shall conform to ASTM designation D 2680—72 specifications. House leads shall be solid wall ABS pipe (6 inch), extra strength (ES) meeting ASTM DI 788-68 specifications. (Residential use only)
- C. Other materials may be approved for a specific installation by the Township Public Works Manager.
- Solid wall PVC pipe, six (6) inch dia., SDR-23.5 (ASTMD 3034) is also allowed for residential service

### SANITARY SEWER SERVICE INSTALLATION

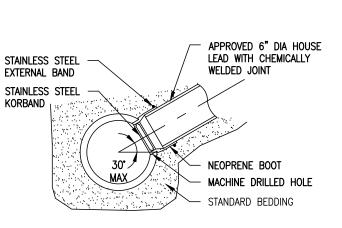
- A. For VCP pipe, each wye or end of service lead shall have a plug with a Wedgelock type No. 1 joint. For ABS pipe the stopper shall be factory approved material.
- B. Each wye or end of service lead shall be marked by setting a 1 inch x 2 inch x 6 ft. cypress, ash or cedar stake vertically above the end of the lead.
- C. Backfill at all risers shall be carefully placed and tamped sufficiently to insure against damage from
- D. Service connection sewer bedding for ABS pipe shall be equal to that of main sewer bedding. Service connections shall be made in plant fabricated 45 degrees or 60 degrees wye fittings. and risers shall not be bedded in concrete.



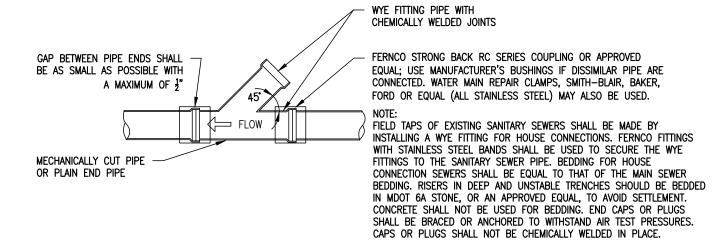
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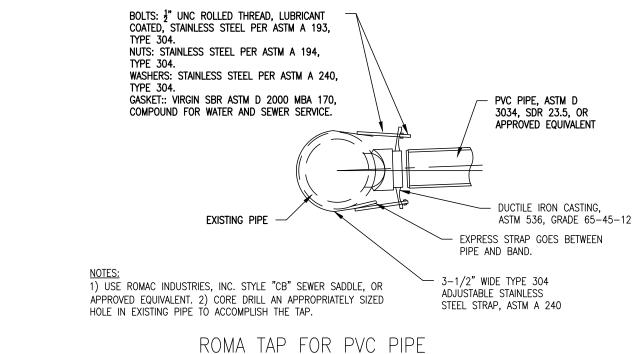
SANITARY SEWER SERVICE AND RISER CONNECTION

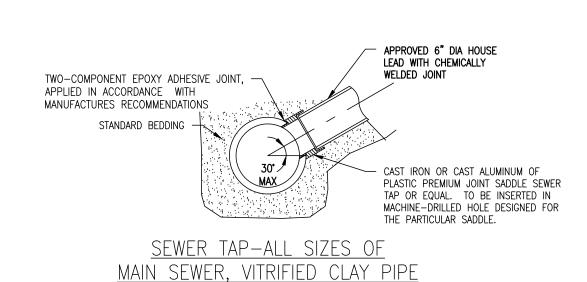


KOR-N-TEE TAP FOR CONCRETE PIPE



WYE PIPE INSERTION WITH FLEXIBLE COUPLINGS (RIDGID PIPE)



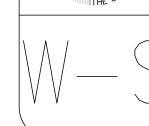




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TOWN

PLYMOUTH Department



#### A. Description

This work includes construction lines of sanitary sewer pipe of the required type and diameters, manholes and other structures, excavation, backfill and testing.

#### B. Materials

- 1. All workmanship, materials and testing shall be in accordance with current standards and specifications of the Plymouth Charter Township and Wayne County Department of Public Services
- 2. Allowable types of sewer pipe and joints are:

SEE NOTES AND MATERIALS AT RIGHT OF SHEET

#### C. Construction

#### 1. Handling Pipe

The pipe shall be distributed at the site and protected from falling from truck to ground or into the trench, and kept clear of passing vehicles.

All materials will be inspected before placing in the trench, and if defective, marked "REJECTED", and shall be removed form the site by the Contractor.

#### 2. Excavation

All excavation shall be open—cut made in such a manner and to such a depth, length and width as will provide ample room for building and structures and for bracing, sheeting and supporting the sides of the excavation for pumping and drainage of ground water and sewage which may be encountered, and for the removal of all materials excavated.

All work shall be done to true line and grade as established on the plans and in accordance with grade stakes set by the engineer. The Contractor shall remove all obstructions or encumbrances which shall be understood as being included in the Contract Unit Prices per lineal foot for laying sewer.

- a. Trench. Excavation shall be of sufficient widths and depths to provide adequate room for construction and installation of the work to lines, grades, and dimensions called for on the plans, except the width of a trench from the invert to a height 12 inches above the top of the sewer barrel, shall not be greater than one (1) foot plus the outside diameter of the sewer barrel for sewer 12 inches to 36 inches in diameter and two (2) feet plus the outside diameter for sewers 42 inches in diameter and larger, except for sewers four (4) inches to 12 inches inclusive, the width of the trench may be 30 inches. If the maximum trench width, as specified above, is exceeded, unless otherwise shown on the drawings, the Contractor shall install, at his own expense, such concrete cradling or other bedding, as is approved by the Engineer, to support the added load of the backfill. Where, through the Contractor's construction procedures or because of poor existing ground conditions, it is impossible to maintain alignment and grade properly, the Contractor shall, at his own expense excavate below grade and refill the trench to the proper grade with a compacted 1-1/2 inch maximum size aggregate, such aggregate to consist of angular shaped crushed stone or blast furnace slag containing sufficient smaller size aggregate to provide proper "keying" of the material together in order to insure that the pipe, when laid, will maintain correct alignment and grade.
- b. Sheeting and Bracing. Where the condition of the ground requires the sides of the trench shall be securely held by bracing and sheeting which may be removed in units when the level of the backfill has reached a point where it is safe to pull the sheeting.

Sheeting, bracing and shoring shall not be left in place after the completion of the work. Where required to protect the work, adjacent structures or property, sheeting, bracing and shoring shall be left in place, but shall be cut off or left not less than two feet below the established surface grade. Sheeting, bracing, or shoring so required to be left in place shall be considered as incidental to the work.

- c. Groundwater and Sewage. The Contractor shall remove by well points, pumping, bailing or other acceptable method, any water that may accumulate or be found in the trenches or precautions to keep the trenches and other excavations entirely clear of water during construction of sewers and structures. Where existing sewers or drains are encountered in this work, adequate provision shall be made for diverting the flow in such existing sewers so that the excavation shall be kept dry during the progress of the construction work. Newly laid concrete shall be adequately protected from injury resulting from groundwater or sewage or from the handling of water or sewerage. No drainage ditches shall be placed within the area to be occupied by any structure except as permitted by the Township Engineer.
- d. Utilities Crossings. In crossing over or under any main or lateral sewer, sewer connection, catch basin, watermain, service connection, gas main, gas connection, conduit, or any underground improvement, the Contractor shall use all possible care in protecting the same from injury, damage or the free unobstructed continuous use of the same as far as possible, and the Contract work shall be performed in such a manner as will effect the least damage or interference with such improvements or the free and unobstructed use of the

The Contractor will be required, without any additional compensation, to repair, replace or rebuild any such improvement injured or damaged by him, and shall be responsible to the department, companies, individuals, or corporations controlling such improvements.

### 3. Excavated Materials

Excavated material may be used in backfilling around sewers and other structures, provided it is suited for such a purpose. All material in excess of the quantity required for backfilling, or that which is unsuited for backfilling, shall be hauled away by the contractor and disposed of legally or by dumping in places on the site designated by the Project Engineer. The Contractor shall provide all labor for spreading such material at the place of dumping and shall leave the area in a finished condition satisfactory to the Project Engineer.

### 4. Tunneling

If tunneling is required, it shall be in accordance with the Requirements for Construction within the Road Right of Way under the Jurisdiction of the Wayne County Department of Public Services.

When tunneling by jacking or boring, all voids shall be filled by means of pressure grouting with a 1:3 cement—sand mortar. This work must be accomplished within 24 hours after the conduit crossing has been completed. The tunneling shall extend a minimum of 10 feet outside the edges of the pavement Pressure grouting will not be required for casings four (4) inches in diameter or smaller unless the voids are one (1) inch or larger.

#### 5. Cutting PVC Truss Pipe

Cutting of pipe lengths, where required, shall be performed by the use of tools or equipment that will provide a neat, perpendicular cut without damage to the plastic or the filler material. Champer outer edge of truss pipe walls along cut edges Bowing or warping of PVC pipe can occur with temperature fluctuations. The Contractor shall store and protect the pipe to minimize bowing. Nominal 12 ft. 6 inch pipe lengths having deviations from straight greater than 1 inch shall not be used.

#### 6. Bedding, Laying and Joining Pipe

a. General. All pipe shall be laid to the line and grade called for on the plan. Each pipe, as laid, shall be checked by the Contractor with line and grade pole to insure that his result is obtained. The finished work shall be straight and shall be sighted through between manholes

Each pipe shall be inspected for defects prior to being lowered into the trench; and inside of pipe and outside of spigot shall be cleaned of any dirt or foreign matter.

Construction shall begin at the outlet (lowest) end and shall proceed upgrade with spigot ends pointing in the direction of flow unless otherwise approved by the Township.

b. Rigid Pipe Materials. The pipe shall be laid on the standard bedding consisting of the sand cushion, which shall extend to a subgrade four (4) inches below the bottom of the pipe. The pipes shall be centered in the bells and pushed tight together to form a smooth and continuous invert. After laying of pipe, care shall be taken so as not to disturb its line or grade. Should line or grade become disturbed, the pipe shall be relaid properly by the Contractor.

The remainder of the standard pipe bedding, free from stones and lumps shall be placed with care, in six (6) inch layers to an elevation providing 12 inches of cover over the pipe. Each layer shall be thoroughly compacted by power tamping.

c. PVC Truss Pipe. Pipe shall conform to ASTM D2680 and joints to ASTM D3212. Bedding for PVC Truss pipe shall be in accordance with the latest applicable ASTM D specification, except, (1) only Class I & Class II materials may be used, (2) embedment shall extend to minimum 12 inches above top of pipe, and (3) flooding or puddling shall not be used.

Where unstable bottoms are encountered, the Contractor shall provide a foundation consisting of an approved graded and processed angular stone or gravel.

Concrete cradle bedding shall not be used where allowable trench widths are exceeded. In lieu of concrete cradle bedding, standard pipe bedding shown shall be provided to the full width between undisturbed trench walls or at least to 2.5 pipe diameters on both sides of the pipes.

Due to the potential damage to exterior walls of truss pipe, particularly under cold weather conditions, if rocks, frozen materials or large objects strike the pipe, the Contractor shall carefully avoid dumping any materials other than approved bedding sand or stone on the pipe until 12 inches of cover is placed over it. Pipe walls and ends shall also be protected from abrasion and damage during handling, and shall be fully inspected just prior to placing in the trench.

Care shall be taken during bedding compaction to avoid distorting the shape of the pipe or damaging its exterior

### 7. Backfill

Backfill is defined as that material placed into the trench from the top of the pipe bedding (as indicated in the detail "Pipe Bedding Details" on sheet S-2) to the ground surface. Backfill shall be placed into the trench according to one of the following specified manners as determined by the location of the trench or the edge of trench nearest the existing pavement, roadway, sidewalk, driveway or parking area.

Wherever compaction is required, it shall be accomplished by suitable mechanical compaction equipment approved by the Township Engineer. Frozen backfill materials are not permitted under any circumstance whatsoever.

### a. Under or Adjacent to Pavement

Trench Location

1) Under existing or proposed pavement

mechanically compacted MDOT Class II granular material constructed in six (6) inch layers, loose measure with each layer compacted to not less than 95 percent of maximum unit weight at

Backfill shall be full depth

Backfill Requirements

optimum moisture

AASHO T-180 or by

M.D.O.T. Cone Density

content per

Method.

2) Parallel to and less than three (5) feet from edge pavement

3) Parallel and less than ten (10) feet and more than three (5) feet from edge of pavement from edge of pavement six (6) inch layers, loose measure, with each layer compacted to not less than 90 percent of maximum unit weight. Backfill material used must provide compaction

meeting requirements of the

local unit of government.

b. Open Space Areas. All trenches in open space areas shall be backfilled by properly bedding the pipe according to the pipe bedding details and then spreading backfill material over the pipe and mechanically compacting to 90 percent of maximum unit weight. Contractor shall regrade as necessary during the life of the contract and as directed by the Township Engineer.

- c. Special Backfill. Where called for on the plans or where required by road permits, the Contractor shall backfill trenches and/or other excavation with the specified material placed into the trench or excavation in six (6) inch deep layers, loose measure, with each layer compacted in accordance with the requirements of said plans or road permits before the succeeding layer is placed.
- d. Backfill. Backfill shall not be placed against any portion of a structure until the structure has passed inspection and has been approved by the Township Engineer for backfilling. All trenches should be backfilled as soon as inspection is completed in order to avoid unnecessary risk or damage to the structure and also to reduce the risk of accidents involving the public.

If a bulldozer or other machine is used to place the backfill material, no material shall be pushed or dropped into the trench, but shall be placed on the sloping ends of the completed backfill, and allowed to roll in place to the bottom of the trench.

#### 8. Connections to Existing Structures

Where the plans call for connections to existing manholes or sewer laterals, the Contractor shall exercise due care to insure that the structure as a whole is not damaged.

#### 9. Manhole

Manholes shall be constructed of the type and in accordance with the details included with this document, and at all locations shown on the plans, or as laid out in the field by the Project Engineer. All necessary metal steps, frames and covers, etc., shall be furnished and installed at the unit bid price. Covers shall be set at the required final elevation so that no subsequent adjustment shall be necessary.

Connections to manholes shall be properly supported and braced where not resting on original ground so that any settlement will not disturb the connection.

Excavation shall be carried to the depth required to permit the construction of the required base and bottom of excavation shall be trimmed to a uniform horizontal bed. The excavation shall be sufficiently wide to allow for shoring, bracing, or form work, should any or all be necessary.

When precast units are used for construction, the bottom precast unit shall have cast openings of sufficient size to receive the sewer pipe. If such openings are not provided, the bottom portion of the manhole shall be constructed of masonry work from the concrete base to at least six (6) inches above the top of the largest pipe entering the manhole, and precast units shall be placed from the masonry to the desired top elevation. When precast units are used for manhole construction, the manhole casting shall be placed on at least three courses of masonry work for future adjusting purposes.

Set bolted watertight frames and covers to the required finished elevations as shown on the plans.

When completed, manholes shall be cleared of scaffolds and cleaned of surplus mortar or other foreign materials.

### 10. Wyes, Risers and Service Connections

Wye branches with type of joint matching six (6) inch lead proposed to be used, or stubs fitted with suitable stoppers of the same type of material and joint as the main sewer, shall be set as called for on the plans.

Riser shall connect to wye branches constructed as part of sewer proper and shall include a 45 degree bend and straight pipe laid to the heights specified at the right of way line or easement line.

House connection sewer bedding for PVC pipe shall be equal to that of main sewer bedding. House connections shall be made in plant fabricated 45 degrees or 60 degrees wye fittings. Fittings and risers shall not be bedded in concrete.

For VCP pipe, each wye or end of service lead shall have a plug with a Wedgelock type no. 1 joint. For PVC pipe the stopper shall be factory approved material.

Each wye or end of service lead shall be marked by setting a 1 inch  $\times$  2 inch  $\times$  6 ft. cypress, ash or cedar stake vertically above the end of the lead.

Backfill at all risers shall be carefully placed and tamped sufficiently to insure against damage from backfill settlement.

### 11. Stubs

Where called for, stubs shall be one full pipe length, or at least six (6) feet long, bulkheaded with masonry or factory approved plugs or caps.

- 12. Testing and Inspection of Pipe materials and Backfill Compaction
  - Manufacturer's test certificates shall accompany all pipe shipments and shall be provided to the Township Engineer.
  - b. Where sewer is constructed in easements and paved areas not in public rights of way, the backfill testing shall be performed by an independent testing laboratory and the cost of services performed shall be paid for by the Contractor. Compaction testing shall be one test per layer of backfill per 50 feet of trench.

### 13. Testing for Infiltration and Television Inspection

a. Television Inspection. All sanitary sewers shall be television inspected with test results approved by the Township prior to placing the sewer into service. All courses not true to line or grade shall be dug up and relaid. Television inspection for all sanitary sewers eight (8)inches in diameter up to and including 27 inches in diameter shall be provided by the Contractor and included in unit price bid per foot of sewer. A video of all lines televised shall be provided to the Township at the completion of the inspection.

### b. Infiltration/Exfiltration Testing

1) All sanitary sewers shall be subjected to air or, infiltration tests or a combination of same, prior to acceptance. All sewers over 24 inch diameter shall be subject to infiltration tests. All sewers of 24 inch diameter or smaller, where the ground water level above the top of the sewer is over seven (7) feet, shall be subjected to infiltration tests. All sewers of 24 inch diameter or less, where the ground water level above the top of the sewer is seven (7) feet or less, shall be subjected to an air test

- 2) Maximum allowable infiltration shall not exceed 100 gallons per inch of diameter per mile of pipe between manholes per 24 hours for any section of the system and shall include the infiltration from all manholes and other appurtenances.
- 3) Manholes on sewers to be subjected to air tests shall be equipped with a one half (1/2) inch diameter galvanized capped pipe nipple extending through the manhole wall, three (3) inches into the manhole and at an elevation equal to the top of the sewer pipe. Prior to the air test the ground water elevation shall be determined by blowing air through the pipe nipple, to clear it and then connecting a clear plastic tube to the pipe nipple. The tube shall be suspended vertically in the manhole and the ground water in the elevation determined by observing the water level in the tube. The air test pressure shall be adjusted to compensate for the maximum ground water level above the top of the sewer pipe to be tested. After all tests are performed and the sewer is ready for final acceptance, the pipe nipple shall be capped.
- 4) The procedure for air testing of sewers shall be as follows: All house leads shall be properly plugged and blocked to withstand the air pressure. The sewer line shall be tested in increments between manholes. The line shall be cleaned and plugged at each manhole. Such plugs shall be designed to hold against the test pressure and shall provide an airtight seal. One of the plugs shall have an orifice through which air can be introduced into the sewer. An air supply line shall be connected to the orifice. The air supply line shall be fitted with suitable control valves and a pressure gauge for continually measuring the air pressure in the sewer. The pressure gauge shall have a minimum diameter of 3-1/2 inches and range of 0-10 PSIG. The gauge shall have minimum divisions of 0.10 PSIG and an accuracy of  $\pm$ 0.04 PSIG.

The sewer shall be pressurized to 4.0 PSIG greater than the greatest back pressure caused by ground water over the top of the sewer pipe. At least 2 minutes shall be allowed for the air pressure to stabilize between 3.5 and 4.0 PSIG.

If necessary, air shall be added to the sewer to maintain a pressure of 3.5 PSIG or greater.

After the stabilization period, the air supply control valve shall be closed so that no more air will enter the sewer. The sewer air pressure shall not begin if the air pressure is less than 3.5 PSIG, or such other pressure as is necessary to compensate for ground water level.

- 5) The time required for the air pressure to decrease 1.0 PSIG during the test shall not be less than the time shown in the tables listed in Appendix C of the current "Sewer Use Regulations". Wayne County.
- 6) The Contractor shall provide all equipment, materials and personnel qualified to perform the testing required, at the Contractor's expense. Proper notice shall be given the Township Engineer in advance of testing.
- 7) For any section of sewer which fails to pass any of the previously described tests, the Contractor shall determine the location of the leaks, repair them and retest the sewer. The tests shall be repeated until satisfactory results are obtained.
- 8) Chemical or cement grouting is not an acceptable method of repairing leaking pipe, joints or structural failure, except where specifically approved by the Township Engineer.

### 14. Deflection Testing for PVC Truss Pipe

The completed installation shall at no point have out—of—round pipe deflections greater than five (5) percent. The Engineer shall have the option of requiring deflectiometer or go/no—go gauging tests run prior to acceptance on pipe lines where high deflections are suspected. Pipe with deflections greater than five (5) percent will be considered unacceptable and shall be relaid by the Contractor.

### Deflection Mandrel

A. Sizing. The mandrel shall have an outside diameter equal to 95 % of the inside diameter of the pipe. The inside diameter of the pipe shall be the average outside diameter minus two minimum wall thicknesses for O.D. controlled pipe and the average inside diameter for I.D. controlled pipe.

B. Design. The rigid mandrel shall be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed. The mandrel shall have nine or more legs as long as the total number of legs is an odd number. The barrel section of the mandrel shall have a length of at least 75% of inside diameter of pipe. The rigid mandrel shall not have adjustable or collapsible legs which would allow reduction in mandrel diameter during testing. A proving ring shall be provided and used for verifying each size mandrel.

C. Proving Ring. Furnish a "proving ring" with each mandrel. Fabricate the ring of 2"—thick, 3"—wide bar steel to a diameter 0.02" larger than approved mandrel diameter.

D. Mandrel Dimensions (5% allowance). Average inside diameter and minimum mandrel diameter are specified in the table below.

### PVC Truss Vs. Mandrel Diameter

Nominal Size	Average I.D.	Minimum Mandrel
(Inches)	(inches)	Diameter (Inches)
8	7.75	7.36
10	9.75	9.26
12	11.79	11.20
15	14 77	1/1 02

### Deflection Testing

A. Perform deflection testing on flexible and semi—rigid pipe to confirm pipe has no more than 5% deflection. Mandrel testing shall conform to ASTM D 3034. Perform testing no sooner than 30 days after backfilling of line segment, but prior to final acceptance testing of the line segment.

B. Pull the approved mandrel by hand through sewer sections. Replace any section of sewer not passing the mandrel. Mandrel testing is not required for stubs.

#### SANITARY SEWER NOTES AND MATERIALS

- 1. All workmanship, materials and testing shall be in accordance with current standards and specifications of the Plymouth Charter Township and the WCDPS.
- 2. Allowable types of sewer pipe and joints are:
- a. Extra strength clay pipe: Vitrified Clay Pipe shall conform to ASTM C700 Specifications. House leads shall conform to this specification. Joints are to be ASTM 425 Type I or Type III, "O" Ring Wedgelock, or equal.
- Reinforced concrete sewer pipe shall conform to ASTM C-76 Class III, Class IV or Class V as called for on the drawings. Joints shall be modified grooved tongue and rubber gasket.
- Polyvinyl Chloride (PVC) Truss or SDR 26 composite sewer pipe and fittings shall conform to ASTM designation D 2680—95a specifications. Joints shall be elastomeric gasket push—on type which shall conform to ASTM designation D 3212. House leads shall be solid wall PVC pipe (6 inch), SDR 23.5. (Residential use only)
- d. Ductile iron pipe and fittings for Pressure Class 150 service or greater shall meet ANSI/AWWA C151/A 21.51 specifications and shall be fully cement lined in accordance with ANSI/AWWA C104/A21.4. Thickness class shall be 54 or higher.
- 3. Standard pipe bedding shall conform to WCDPS Trench "B" requirements.
- 4. All trenches under or within five (5) feet of the existing and/or proposed curb or pavement shall be backfilled to grade with thoroughly compacted, approved sand meeting MDOT CL II granular material specifications. The backfill shall be placed in six (6) inch layers with each layer compacted by an approved mechanical method to 95% of maximum unit weight as determined by the AASTHO T-180 or the Michigan Department of Transportation Cone Density testing method.
- 5. The reuse of existing sanitary sewer leads for new construction will require an internal inspection of the existing lead to determine the suitability of the pipe. The results of the internal inspection (video) must be provided to the DPW for evaluation. If the lead is found to be in suitable condition, the sanitary lead may be reused. If the lead is in unsuitable condition, the lead must be repaired or a new lead constructed, as necessary.
- 6. Testing of sanitary sewers and existing stubs by infiltration/exfiltration or air testing is required. Infiltration for any section of sewers between manholes shall not exceed 100 gal./inch dia./mile/24 hours.
- 7. All sanitary sewers shall be television inspected with test results approved by Plymouth Township prior to placing the sewer into service. All courses not true to line or grade shall be dug up and relaid. Television Inspection for all sanitary sewers eight (8) inches in diameter to and including 27 inches in diameter shall be provided by the contractor.
- 8. All elevations are based on (U.S.G.S.) Datum.
- 9. No footing drains shall be connected to the building sewer.
- 10. The differential in excavation elevation around existing manholes shall not exceed six (6) feet.
- 11. To tap an existing manhole or sewer pipe, the Contractor shall utilize coring the manhole or pipe using Kor-n-Seal boot, Res-Seal, Link-Seal, Press Wedge II or other approved equal. All taps to the manhole must be made below the transition section.
- 12. No connection receiving storm water, surface water, or ground water shall be made to sanitary sewers.
- 13. It shall be the contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities on the project.
- 14. Where sanitary sewer crosses a watermain, provide a minimum of 18 inch vertical clearance between watermain and sanitary sewer or construct the sewer of material meeting the watermain specification.
- 15. Contractor shall call MISS DIG at (800) 482—7171 at least three (3) working days prior to construction. Contractor shall be responsible for any damage done to any existing utility during construction.
- 16. Contractor shall notify the Plymouth Charter Township Department of Public Works two (2) working days prior to the start of construction. Phone (734) 354—3270.

18. Contractor shall notify the Wayne County Department of Public

Community Fire Department. Contact Spalding DeDecker at

agreement and easements submitted, fees paid, and approved

- Contractor shall notify the Township Engineer two (2) working days prior to construction or testing. Contact Spalding DeDecker and Associates, Inc at (248) 844-5400.
- Services, Engineering Division, Permits Office, seventy—two (72) hours prior to the start of construction. Phone (734) 595—6504 Ext. 3.

  19. A pre—construction meeting shall be scheduled two weeks prior to expected start of construction with the Township Engineer, Department of Public Works, Building Department, and the Plymouth

(248) 844-5400. All permits must be obtained, executed storm sewer

construction sets submitted prior to scheduling a pre-construction meeting.

- 20. Restoration of any existing hard surface area, of any type, required as a result of removal of existing surfacing by Plymouth Township forces or agents during the course of maintenance of water main or sanitary sewer located under pavement, is the responsibility of the owner of this site and will not be performed by, nor paid for, by Plymouth Township.
- ① CUT EXISTING DAMAGED PIPE AS SQUARELY AS POSSIBLE
   ② CHAMFER OUTER EDGE OF TRUSS PIPE WALLS
   ③ CLEAN THOROUGHLY AND LUBE LIBERALLY THE REMAINING PIPE
- SPIGOTS APPROXIMATELY 1-1/2 TIMES THE COUPLING LENGTH

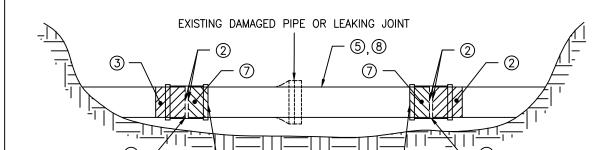
  4 PUSH REPAIR COUPLING IN POSITION ALLOWING 3" TO 4" OF
- SPIGOT TO EXTEND BEYOND COUPLING

  (5) CUT REPLACEMENT LENGTH AS CLOSE AS POSSIBLE TO LENGTH THAT WAS REMOVED

6 MARK ENDS OF REPLACEMENT PIPE 1/2 LENGTH OF COUPLER

REPAIR COUPLINGS TO "HOME" MARKS

UBE LIBERALLY THE ENDS OF THE REPLACEMENT LENGTH AND IN FRONT OF REPAIR COUPLING ON EXISTING LENGTHS
 ALIGN REPLACEMENT LENGTH WITH EXISTING SPIGOTS & PUSH



REPAIR COUPLING DETAIL

THE CYANON BLYMO

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CHARTER TOWNSHIP OF PI

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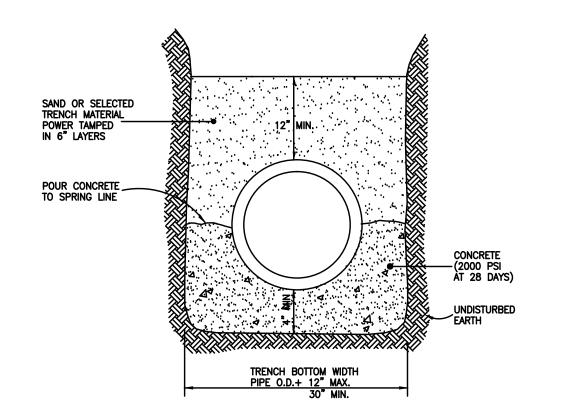
OUNTY,

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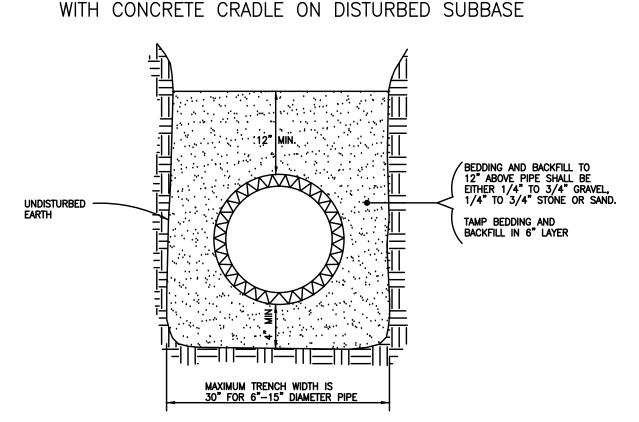
WAYNE

YMOUTH,

BEDDING FOR PVC OR CONCRETE PIPE



BEDDING FOR PVC OR CONCRETE PIPE ONLY



BEDDING FOR PVC TRUSS COMPOSITE, PVC SOLID WALL & DUCTILE IRON PIPE

EXCAVATED MATERIAL BACKFILL SHALL BE
PLACED IN ONE FOOT LAYERS AND COMPACTED
BY MECHANICAL TAMPING OR OTHER EFFECTIVE
MEANS HAVING APPROVAL OF THE ENGINEER, TO
A DENSITY OF 90% OF THE MAXIMUM UNIT WEIGHT.

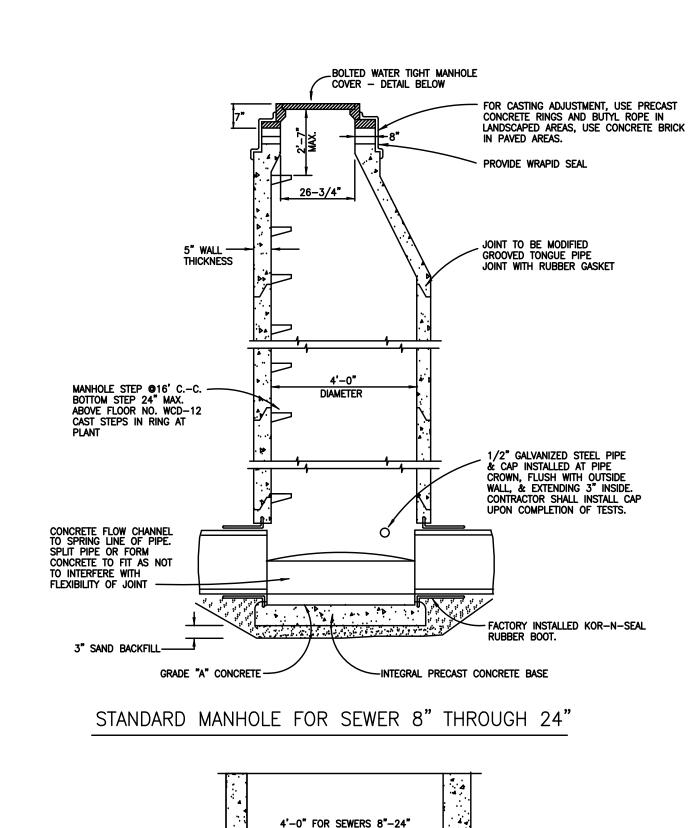
ALL TRENCHES UNDER OR WITHIN FIVE (5) FEET OF THE EXISTING

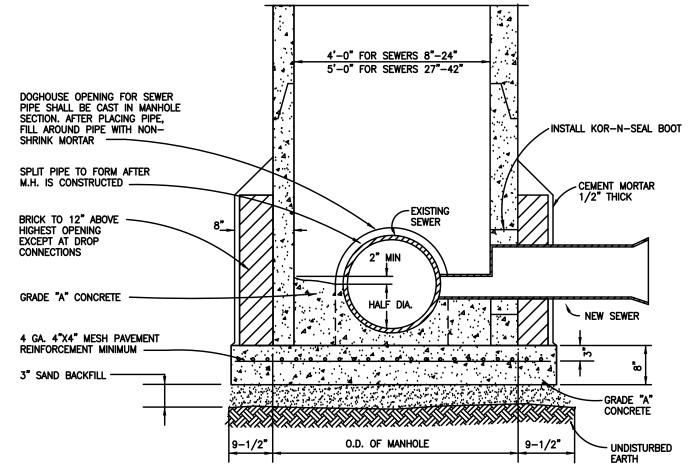
SAND MEETING MOOT CL II SPECIFICATIONS. THE BACKFILL SHALL BE

PLACED SIX (6) INCH LAYERS WITH EACH LAYER COMPACTED BY AN APPROVED MECHANICAL METHOD TO 95% OF
MAXIMUM UNIT WEIGHT AS DETERMINED BY THE AASHO T-180 OR
THE MICHIGAN DEPARTMENT OF TRANSPORTATION CONE DENSITY

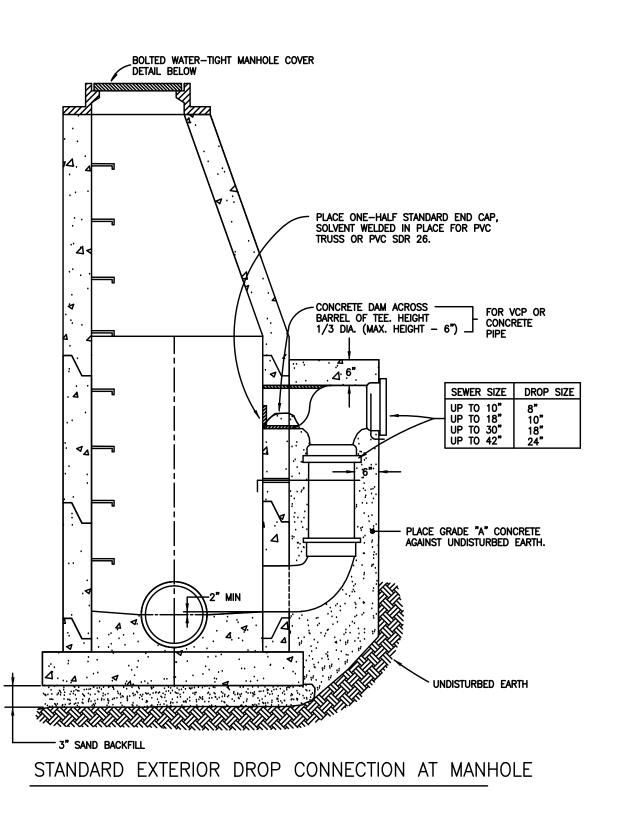
AND/OR PROPOSED PAVEMENT CURB OR PAVEMENT SHALL BE BACKFILLED TO GRADE WITH THOROUGHLY COMPACTED, APPROVED

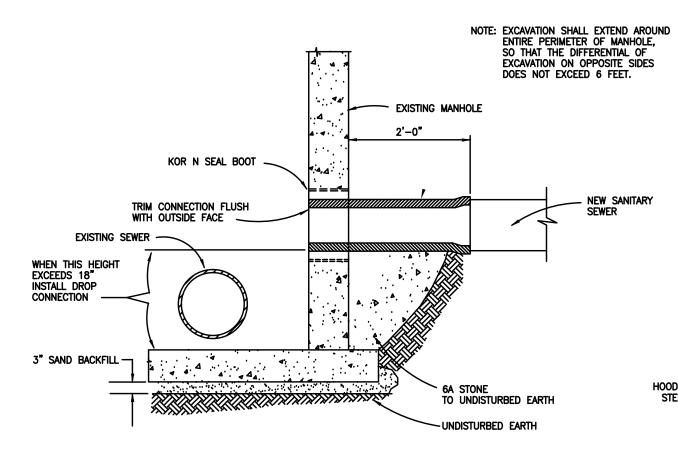
PIPE BEDDING DETAILS

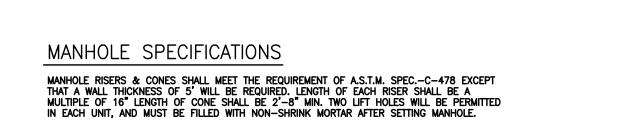




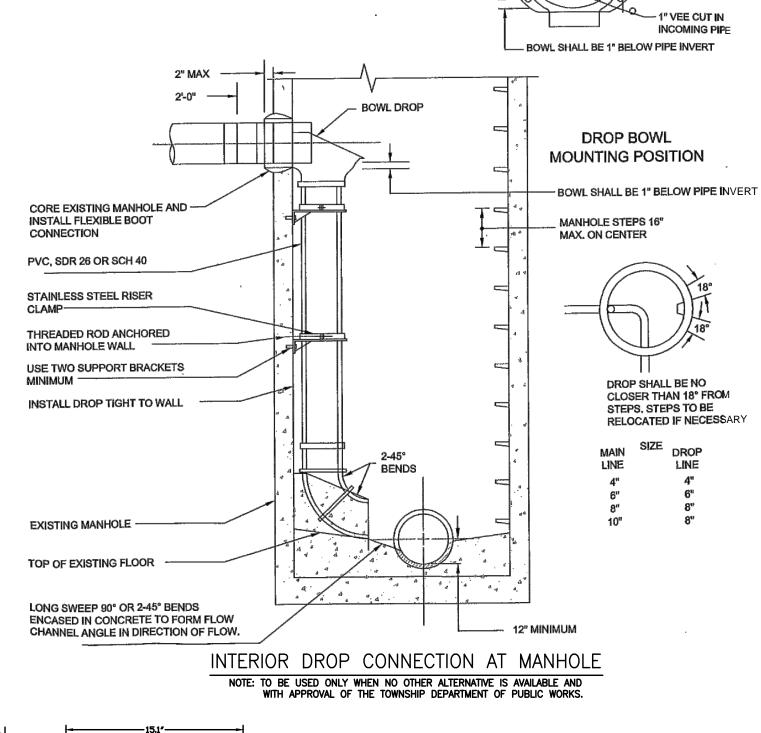
STANDARD MANHOLE BUILT OVER EXISTING SEWER MANHOLE RISERS & CONES SHALL MEET THE REQUIREMENT OF A.S.T.M. SPEC.—C—478 EXCEPT THAT A WALL THICKNESS OF 5' WILL BE REQUIRED. LENGTH OF EACH RISER SHALL BE A MULTIPLE OF 16" LENGTH OF CONE SHALL BE 2'—8" MIN. TWO LIFT HOLES WILL BE PERMITTED IN EACH UNIT, AND MUST BE FILLED WITH NON—SHRINK MORTAR AFTER SETTING MANHOLE.







STANDARD CONNECTION TO EXISTING MANHOLE



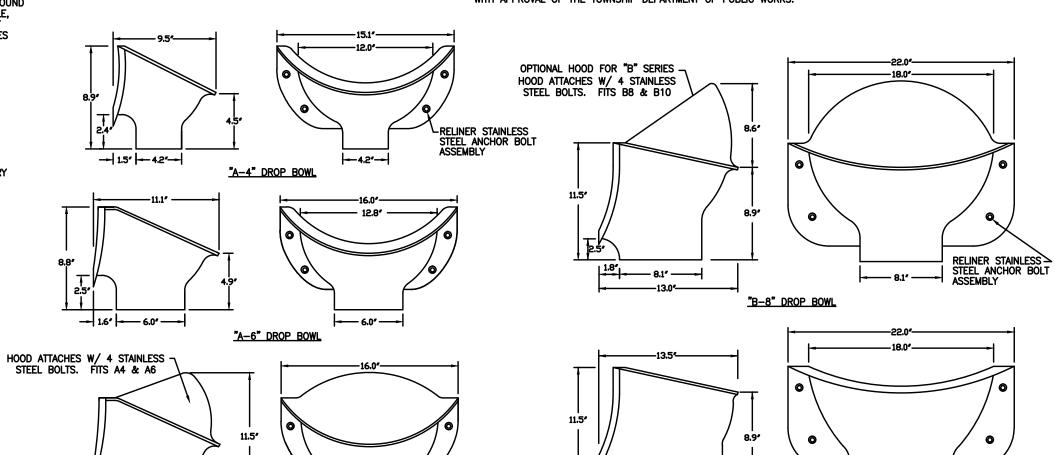
NOTES:

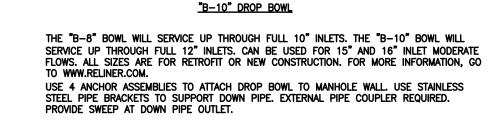
1. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN, INC STAINLESS

2. ATTACH THE DROP BOWL & EACH CLAMPING BRACKET TO THE MANHOLE WALL

WITH 3/8" x 3 3/4" RAMSET/RED HEAD BOLTS HELD INPLACE WITH 2 STAGE

STEEL ADJUSTABLE CLAMPING BRACKETS OR EQUAL.





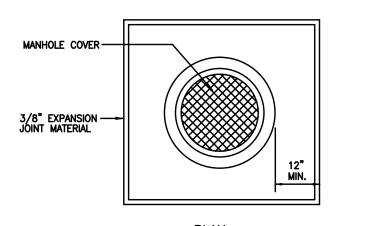
SILICON SEAL INSIDE OF

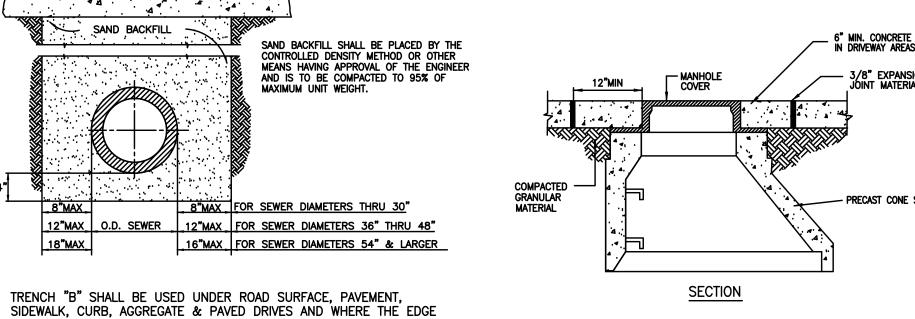
BOWL TO MANHOLE WALL

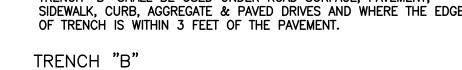
-INSIDE DROP BOWL

SECURED WITH 4 STAINLESS STEEL

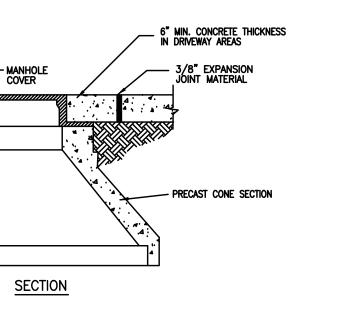
BOLTS





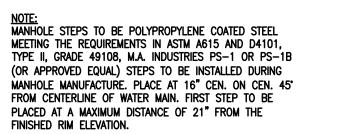


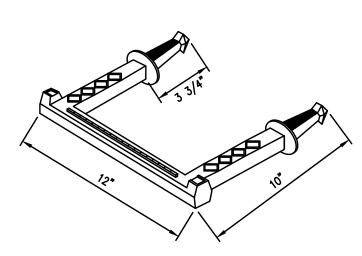
✓ SURFACING



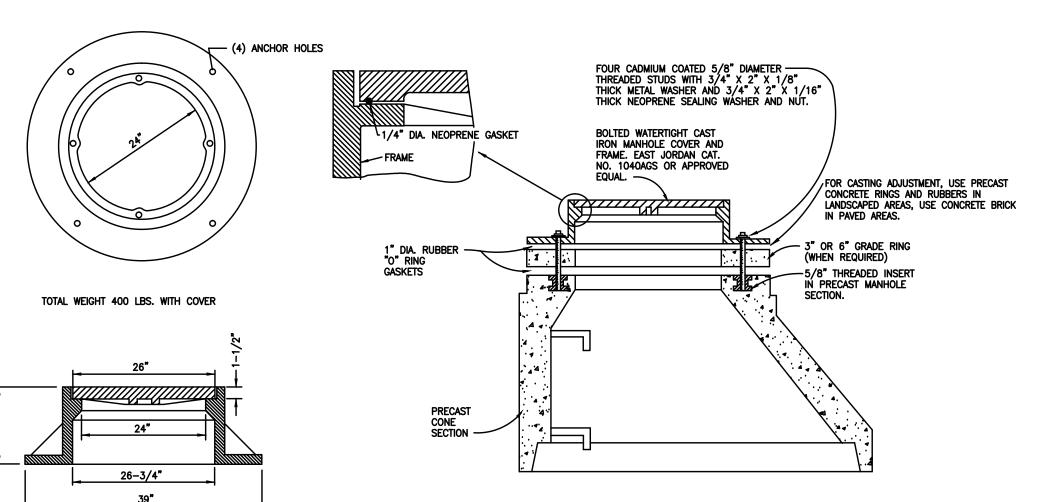
NOTE: ISOLATION SLABS ARE TO BE USE IN ALL CONCRETE DRIVEWAYS, SIDEWALKS AND CONCRETE PAVEMENT.

ISOLATION SLAB FOR MANHOLES IN CONCRETE PAVEMENT





MANHOLE STEP DETAILS



STANDARD SOLID WATER TIGHT BOLTED MANHOLE COVER DETAILS

"A-6" DROP BOWL WITH OPTIONAL FORCE LINE HOOD

THE "A-4" BOWL WILL SERVICE UP THROUGH FULL 6" INLETS. THE "A-6" BOWL WILL SERVICE UP THROUGH FULL 8" INLETS. CAN BE USED FOR 10" INLET MODERATE FLOWS. ALL SIZES ARE FOR RETROFIT OR NEW CONSTRUCTION. FOR MORE INFORMATION, GO TO

USE 4 ANCHOR ASSEMBLIES TO ATTACH DROP BOWL TO MANHOLE WALL. USE STAINLESS STEEL PIPE BRACKETS TO SUPPORT DOWN PIPE. EXTERNAL PIPE COUPLER REQUIRED. PROVIDE SWEEP AT DOWN PIPE OUTLET.

TOWNSHI

TOWN, WORKS

TRENCH "A" SHALL BE USED UNDER CONDITIONS OTHER THAN SPECIFIED FOR TRENCH "B". TRENCH "A"

EXISTING GROUND

TESTING METHOD.

8"MAX. FOR SEWER DIAMETERS UP TO 36"

12"MAX. FOR SEWER DIAMETERS 36" UP TO 54"

16"MAX. FOR SEWER DIAMETERS 54" & LARGER

SUITABLE EXCAVATED

BACKFILL MATERIAL

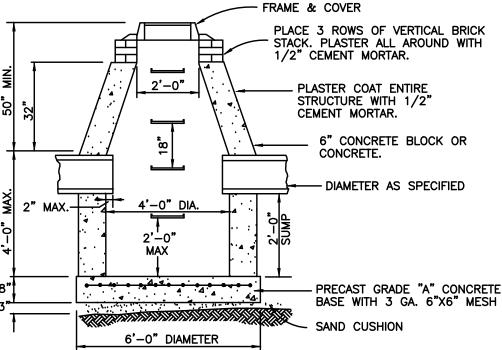
(EXCLUDING BLUE CLAY)

12"MAX. O.D. SEWER.

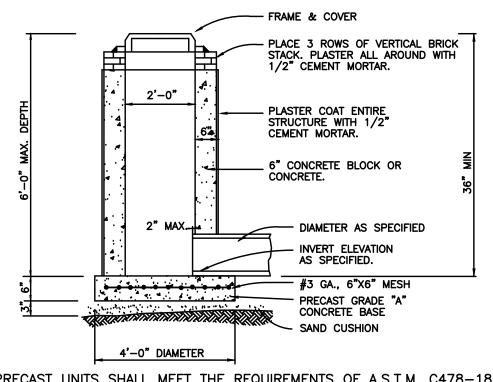
18"MAX.

BACKFIL

PRECAST UNITS SHALL MEET THE REQUIREMENTS OF A.S.T.M. C478-18 STANDARD MANHOLE

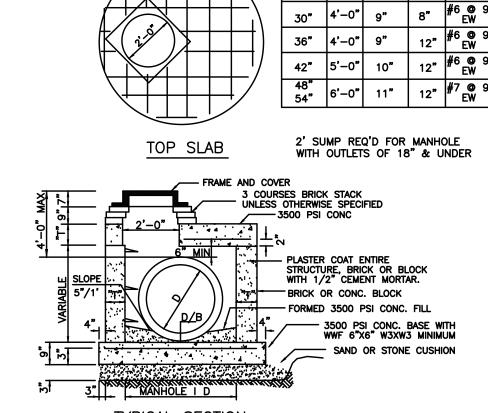


PRECAST UNITS SHALL MEET THE REQUIREMENTS OF A.S.T.M. C478-18 STANDARD CATCH BASIN

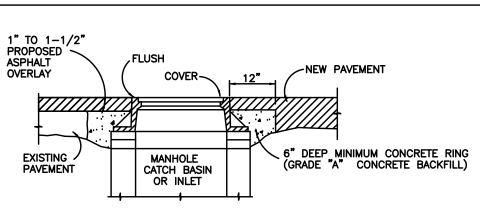


PRECAST UNITS SHALL MEET THE REQUIREMENTS OF A.S.T.M. C478-18 STANDARD INLET OR CLEANOUT

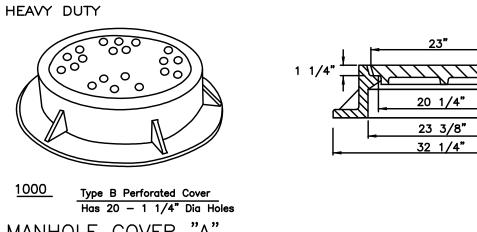
24" | 4'-0" | 9" | 8" | #6 **©** 9



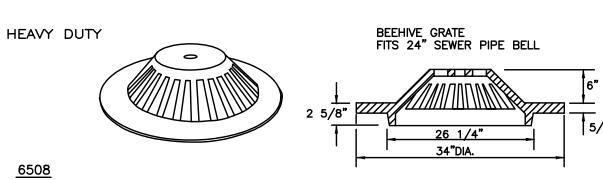
TYPICAL SECTION PRECAST UNITS SHALL MEET THE REQUIREMENTS OF A.S.T.M. C478-18 TYPICAL MANHOLE "D"



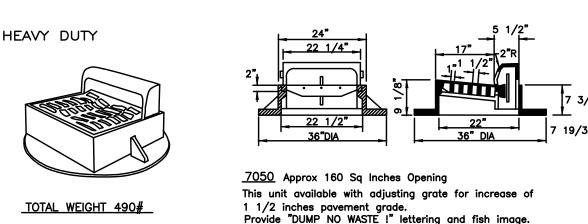
DRAINAGE STRUCTURE COVER - CONCRETE RING DETAIL FOR NEW INSTALLATION OR ADJUSTMENT



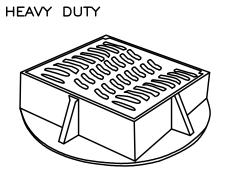
MANHOLE COVER "A"



<u>6508</u> eximately 280 square inches of opening Fits 24" sewer pipe bell Provide "DUMP NO WASTE!" lettering. REAR YARD DRAINAGE COVER



CATCH BASIN OR INLET COVER FOR CURB & GUTTER



TOTAL WEIGHT 515#

TOTAL WEIGHT 435#

HEAVY DUTY

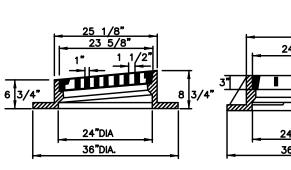
HEAVY DUTY

TYPE A SOLID COVER <u>1000</u>

CLEANOUT COVER

4"

<u>1/2"R</u>



23 3/8"

32 1/4"

- BITUMINOUS

PREPARED SUB-BASE

SPECIFICATIONS

SIGN SHEET

LETTER SIZE

2 INCH

SIGN SPACING.

200 FEET

METAL PANELS 0.081 INCH THICK NO 6061-T6 ALUMINUM

REFLECTORIZED

GALVANIZED SQUARE
TUBING WITH CONTINUOUS

7.16 ROUND HOLES ON " CENTERS. ALL 4 SIDES.

OR APPROVED EQUAL -

1-3/4" SQUARE

ENTIRE LENGTH - UNISTRUT

FWHA 6.306

PAVEMENT

7076 APPROX. 275 SQ. IN. OF OPENING

22 1/2" SQ.

1'-4"

CATCH BASIN OR INLET COVER IN PAVED AREAS

\_#4 REROD

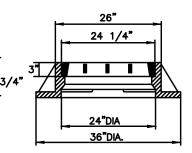
2'-6"

NO PARKING SIGN DETAIL

MOUNTABLE CONC. CURB & GUTTER

(SPECIFY TYPE COVER OR GRATE)

Machined bearing surfaces
Designed for heavy metropolitan traffic

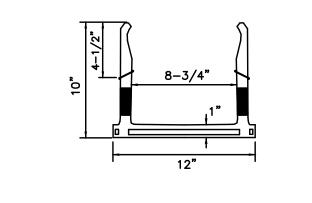


22 1/4" SQ.

CATCH BASIN OR INLET COVER FOR GUTTER IN PAVED AREAS

18"MAX

TRENCH "B"



PLASTIC COATED STEEL STEP ALUMINUM STEP NOTE: STEPS PROJECT 6" FROM FACE OF WALL

TRENCH "B" SHALL BE USED UNDER ROAD SURFACE, PAVEMENT,

OF TRENCH IS WITHIN 3 FEET OF THE PAVEMENT.

SIDEWALK, CURB, AGGREGATE & PAVED DRIVES AND WHERE THE EDGE

EXISTING GROUND

(EXCLUDING BLUE CLAY) ~

SAND

12"MAX.

18"MAX.

TRENCH "A"

**BACKFIL** 

EXCAVATED MATERIAL BACKFILL SHALL BE
PLACED IN ONE FOOT LAYERS AND COMPACTED
BY MECHANICAL TAMPING OR OTHER EFFECTIVE
MEANS HAVING APPROVAL OF THE ENGINEER, TO
A DENSITY OF 90% OF THE MAXIMUM UNIT WEIGHT.

SAND BACKFILL SHALL BE PLACED BY THE CONTROLLED DENSITY METHOD OR OTHER

MEANS HAVING APPROVAL OF THE ENGINEER AND IS TO BE COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT.

SAND BACKFILL SHALL BE PLACED BY THE CONTROLLED DENSITY METHOD OR OTHER MEANS HAVING APPROVAL OF THE ENGINEER

AND IS TO BE COMPACTED TO 95% OF

8"MAX. FOR SEWER DIAMETERS UP TO 36"

16"MAX. FOR SEWER DIAMETERS 54" & LARGER

O.D. SEWER. 12"MAX. FOR SEWER DIAMETERS 36" UP TO 54"

8"MAX FOR SEWER DIAMETERS THRU 30"

12"MAX FOR SEWER DIAMETERS 36" THRU 48"

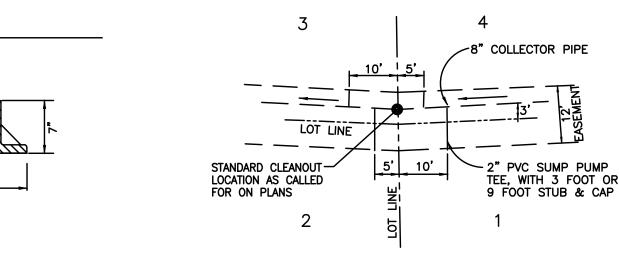
16"MAX FOR SEWER DIAMETERS 54" & LARGER

TRENCH "A" SHALL BE USED UNDER CONDITIONS OTHER THAN SPECIFIED FOR TRENCH "B".

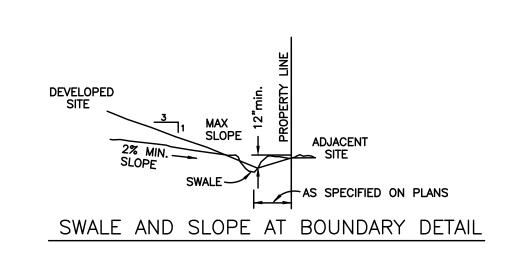
~ SURFACING

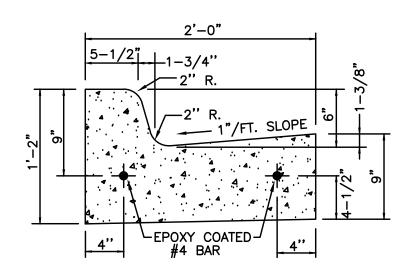
- SAND BACKFILL

MANHOLE STEPS 5105 APPROX. 225 SQ. IN. OF OPENING Provide "DUMP NO WASTE!" lettering and fish image.



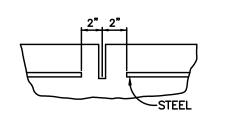
SUMP PUMP COLLECTOR SYSTEM DETAIL

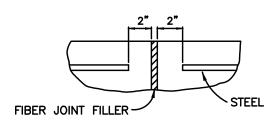




CONCRETE CURB & GUTTER M.D.O.T. DETAIL F-4

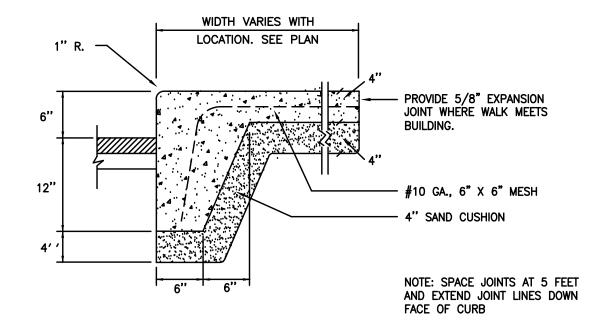
JOINTS IN CURB OR CURB & GUTTER NOT TIED TO CONCRETE PAVEMENT; ) PLACE 1" FIBER JOINT FILLER AT SPRING POINTS OF STREET RETURNS. ) Place 1" fiber joint filler at approximately 400 foot intervals when SPRING POINTS OF INTERSECTING STREETS ARE MORE THEN 400 FEET APART PLACE AN EXPANSION JOINT 10' TO 50' EACH SIDE OF EACH CATCH BASIN 3) PLACE CONTROL JOINTS AT APPROXIMATELY 50 FOOT INTERVALS.



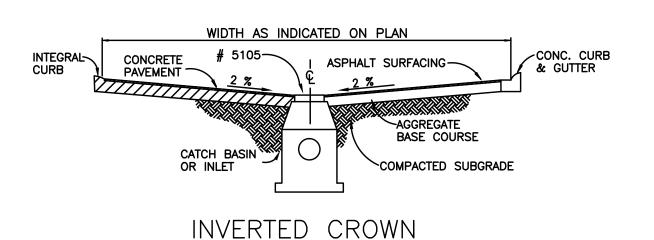


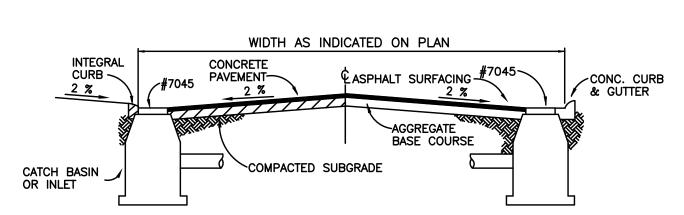


EXPANSION JOINT BREAK STEEL



INTEGRAL CONCRETE CURB & WALK





STANDARD CROWN

#### STANDARD DRIVE AND SITE SURFACING CROSS SECTIONS WITH CURB AND GUTTER

#### SURFACING THICKNESS & MATERIAL SPECIFICATION REQUIREMENTS

- For commercial and industrial site development only, surfacing for parking areas, as provided in Section 20.2 of the Zoning Ordinance, shall consist of a minimum surface thickness of 1 1/2 inch MDOT Mixture 36A Bituminous and 1 1/2 MDOT Mixture 13 A Bituminous and laid on a eight (8) inch minimum thickness base course placed in two (2) compacted four (4) inch layers of MDOT Specification 22A, or equivalent. This minimum specification shall not be construed as a substitute for sufficient pavement thickness where traffic conditions and/or soil conditions require more substantial pavement designs.
- Concrete curb and gutter shall be MDOT Detail C-4, unless approved otherwise, with concrete mixture MDOT P1 or approved equivalent.
- Concrete paving may be used which provides an equivalent section based on AASHTO

### TYPICAL PAVEMENT FOR NON-PUBLIC ROADWAYS & DETAILS

### SIDEWALKS

- A. Where required by the Planning Commission and/or Township Zoning Ordinance, public walks are to be installed as part of the site development and along the frontage of the property.
- B. Sidewalks shall be five (5) feet in width.
- C. Sidewalks shall extend through all driveways without steps, curbs or other obstacles.
- D. Sidewalks shall use MDOT concrete mixture Grade P1, placed six (6) inch thick at residential
- drives, eight (8) inch thick at commercial drives, and four (4) inch thick elsewhere. E. Detectable warning surface shall be provided on walking surfaces in accordance with the current Americans with Disability Act Accessibility Guidelines (ADAAG).

### STORM SEWER SYSTEM

- A. A structure with multiple pipe connections, with at least one of which being a 12 inch, must be a minimum four (4) foot structure.
- B. Storm sewers must have a minimum of three (3) feet of cover
- C. All structures that do not meet the minimum cover requirement of the standard structure shall be specified as Typical Manhole "D".
- D. A two (2) foot sump is required, at a minimum in the first structure upstream of the

### STORM SEWER NOTES AND MATERIALS

- A. Standard Storm Sewer trench bedding and backfill shall conform to WCDPS trench B. For storm sewers located at least five (5) feet outside the edge of existing or proposed pavement or sidewalk, WCDPS Trench A may be used.
- B. Storm sewer pipe shall be reinforced concrete pipe ASTM 76, Class IV. RCP-C76 Class Ill may be used when the minimum depth of cover on the pipe is more than three (3) feet and outside of pavement. Both pipe uses are subject to surface loadings.
- C. Joints for RCP storm sewer pipe may be either modified tongue and groove with synthetic rubber gasket (ASTMC361), or standard tongue and groove with cold mastic (Dewitt #10). For pipe sizes 30 inches or larger the joints shall be inside cement pointed.

### SUMP PUMP DISCHARGE COLLECTOR SYSTEM MATERIALS

- A. Sump pump discharge line is two (2) inch PVC schedule 40 pipe for connecting the pump discharge line to the tee in the collector pipe.
- B. Structures with a 1000—A (solid) frame, are a two (2) foot diameter structure with a 1000—A (Solid) frame. The collector pipe shall be minimum pipe shall be minimum eight (8) inch PVC truss at a minimum slope of 0.30 percent Cleanouts are required at 300 foot intervals and the upper end of the collector pipe.
- C. Minimum depth of all piping is three (3) feet.
- D. Minimum slope on discharge lines and collector pipe is 0.30 percent.
- Connect the pipe to the storm drainage system. Where the outlet is a drain, place a concrete headwall and plain rip rap for erosion protection.
- F. The collector piping is placed in the rear yard drainage easement.
- G. Sump Pump collector lines must connect to the storm sewer system at a catchbasin , manhole or rear yard inlet.
- H. No surface water shall be drained by the sump pump. Collector system and all structures on this system shall have solid covers.

### GRADING AND REAR YARD DRAINAGE PLAN NOTES AND MATERIALS

- A. Rear yard storm sewers shall be min. 12 inch diameter concrete pipe ASTM C76 CLIII, or larger as the design requires.
- B. Covers for structures shall be EJIW 6508.
- Standard bedding and backfill for concrete storm sewer is Trench A.
- Pipes serving as underdrains only shall be six (6) inch diameter perforated plastic underdrain pipe placed in a trench backfilled with 10A stone full depth. The Underdrain pipe may be either A.B.S., P.V.C. with a minimum crushing strength of 1000 lbs/ft.
- Where rear yard surface drainage is not being collected, the surface swales are less than two (2) percent and sump pump collection lines are not tied into the sewer, two (2) foot structures with 1000—A (Solid) frames are required for the under drain system. Underdrain pipe will be minimum six (6) inch diameter perforated plastic pipe at a minimum slope of 0.30 percent backfill with 10A stone full depth.
- Where rear yard surface drainage is being collected, the surface swales are less than two (2) percent and sump pump collection lines are tied into the sewer, four (4) foot structures with 6508 (Beehive) frames are required. The storm sewer line will be minimum 12 inch perforated pipe at a minimum slope of 0.32 percent backfill with 10A stone full depth.

### TESTING NOTES

- A. The Contractor is required to secure the services of a qualified testing laboratory for the quality control testing for all backfill and earthwork compaction density control and all sampling and testing of concrete, asphalt and aggregate.
- B. These tests shall be performed in the field at the specified rates below:
- 1. All concrete for air content, temperature, cylinder tests one set of tests and cylinders per 250 cubic yards used, or one set per day.
- Compaction testing of backfill shall be one compaction test per layer of backfill per 50 feet of trench.
- Compaction testing of aggregate base courses and earth fills shall be one compaction test per layer of material per one hundred feet of base or subgrade.
- Bituminous leveling and surface courses less than three (3) inch thick shall be compacted to 100 percent of the average unit weight determined by the Rolling Test Method. Bituminous base courses shall be compacted to 95 percent of maximum. Field density shall be determined by the nuclear densometer method.

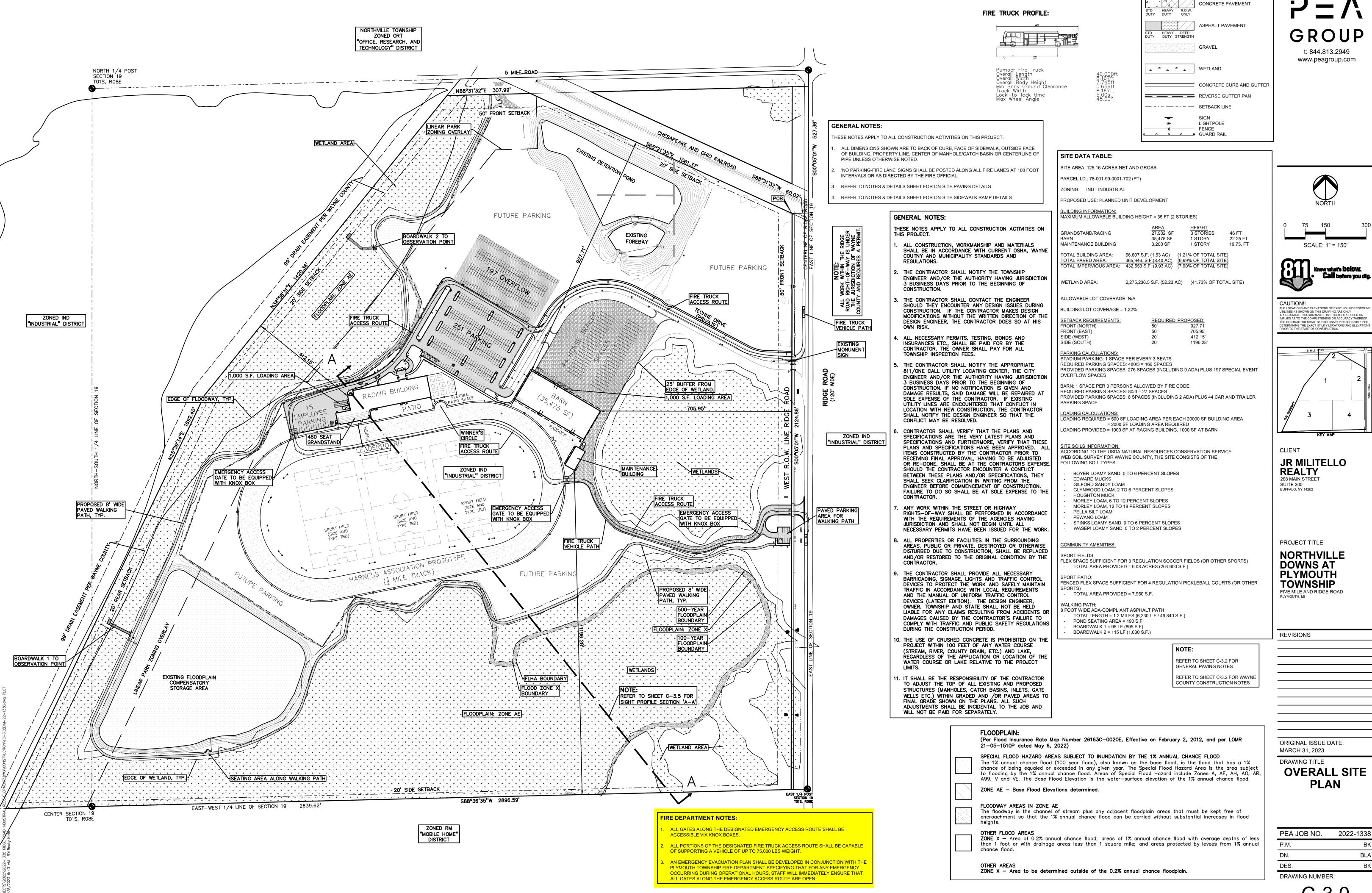
### PLAN NOTES

- 1. All workmanship, materials, and testing shall be in accordance with the current standards and specifications of the Plymouth Charter Township and Michigan Department of Transportation or Wayne County Department of Public Services where referenced.
- 2. It shall be the contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities on the project.
- Standard utility trench bedding and backfill shall conform to WCDPS trench B. For utilities located at least five (5) feet outside the edge of existing or proposed pavement or sidewalk, WCDPS Trench A may be used.
- 4. Contractor shall call MISS DIG at (800) 482-7171 at least three (3) working days prior to construction. Contractor shall be responsible for any damage done to any existing utility
- Contractor shall notify the Plymouth Township Department of Public Works two (2) working days prior to the start of construction. Phone (734) 354–3270.
- Contractor shall notify the Township Engineer two (2) working days prior to start of construction or testing, Spalding DeDecker Phone: (248) 844-5400.
  - Testing and inspection of all materials and construction is required at the expense of the Contractor.



UPDATES REVISED REVISED DDRESS

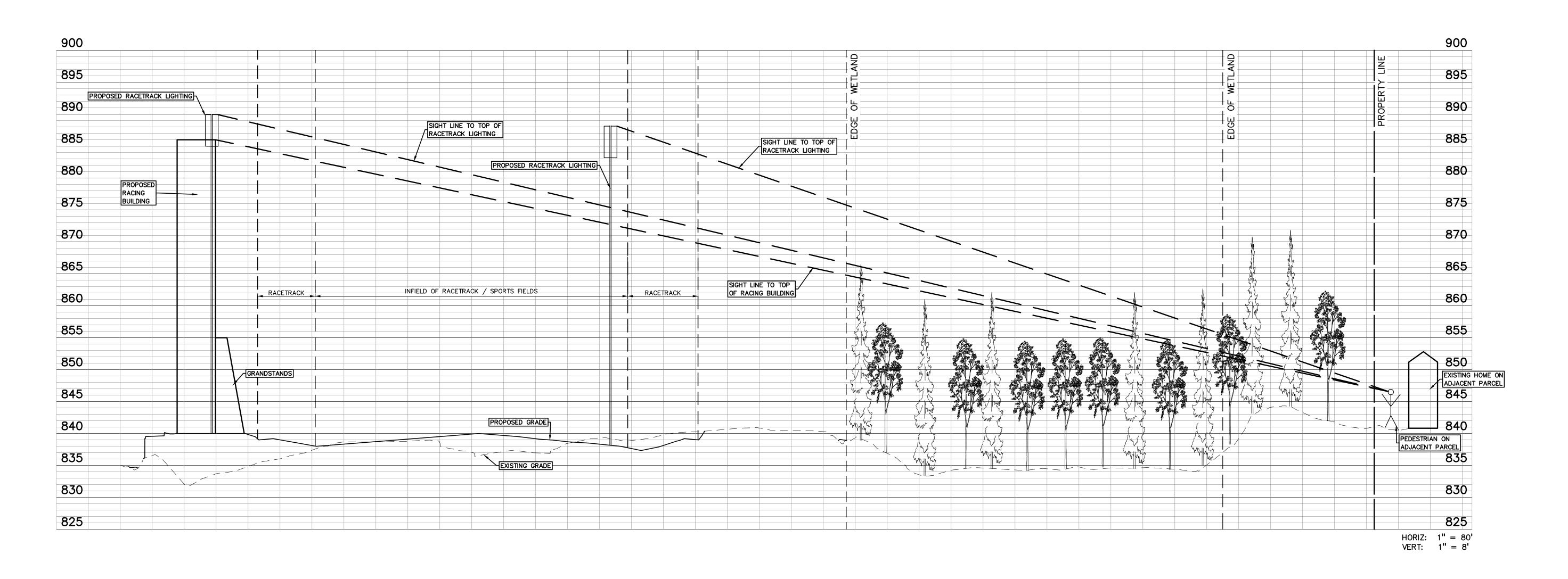
TOWNSI-WORKS



BLA

LEGEND:







CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT JR MILITELLO REALTY 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE SIGHT PROFILE SECTION 'A-A'

PEA JOB NO. 2022-1338 DES.
DRAWING NUMBER:

Photometrics

GROUP www.peagroup.com

CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING 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 UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT

JR MILITELLO **REALTY** 268 MAIN STREET SUITE 300 BUFFALO, NY 14202

PROJECT TITLE

REVISIONS

**NORTHVILLE DOWNS AT PLYMOUTH** TOWNSHIP FIVE MILE AND RIDGE ROAD PLYMOUTH, MI

ORIGINAL ISSUE DATE: MARCH 31, 2023 DRAWING TITLE

**STADIUM LIGHTING PLAN** 

PEA JOB NO. 2022-1338 BLA DES.

DRAWING NUMBER:

**Northville Downs** 

**Horce Racing Track** 

04/20/2023

Job Number: 982287

Powered by Wisconsin Lighting Lab, Inc.

\*Luminaire testing data is based on Illuminating Engineering Society (IES) standards under simulated and laboratory conditions. This design is based on information supplied by others, and individual field measurements may vary from computer-simulated calculations due to variables like (but not limited to) variation in electrical voltage, environmental conditions and other variable field characteristics. Typical field foot candle measurements may vary +/- 10%. For sports lighting, field measurements should be taken in accordance with IESNA RP-6-15. Conformance to facility and local codes is the responsibility of the owner and their representatives. This layout may not meet OA Title 24 and/or other local energy codes. If specific compliance is required, those details must be provided to your factory design representative.

\*\*Satisfactory performance and safe use of LED sports lighting fixtures is dependent upon light poles, brackets, anchorage and other structural components being of adequate design and condition. The total combined Effective Projected Area (EPA) and weight of all fixtures, brackets and attachments mounting to a light pole cannot exceed the EPA and weight rating for a specified pole. For sports lighting retrofit applications, it is the customer's responsibility to have a qualified inspector and/or engineer confirm the structural adequacy of the existing light poles assemblies. We are happy to quote new light poles and brackets if you have concerns about your existing materials bonded

Prepared by: CO

General Electrical Requirements: 3-phase, 4-wire, 480V at service entrance Service entrance supplied voltage to be within 5%.

Type 2 SPD installed near service entrance

 2-6ga conductors at each pole base 3-wire, 277V at pole base (Line – Neutral – Ground) 3% permissible voltage drop from service entrance and pole base

 3-wire, 110-277V at wireless control base station (exact location TBD) Typical grounding electrode at pole base, bonded

WISCONSIN LIGHTING LAB \*

Renderings

**Photometric Layout** 

308 N. Brooke St. | Fond du Lac, WI 54935 quotes@willbrands.com | www.willbrands.com @2022

WISCONSIN LIGHTING LAB \* **Photometric Layout** Calculations

P4 50' POLE, ACR6/ACR6/ACR6/ACR2, PDH, RPC, 20 TOTAL KB8 FIXTURES 50' POLE, ACR6/ACR6/ACR6/ACR6, PDH, RPC, 24 TOTAL KB8 FIXTURES 50' POLE, ACR6/ACR6/ACR6/ACR2, PDH, RPC, 20 TOTAL KB8 FIXTURES PA1 50' STEEL POLE, ACR6, PDH, RPC, 6 TOTAL KB8 FIXTURES

**Calculation Summary** 

27.93 44.2 15.2 1.84 2.91 Winners Circle Illuminance Finish Line Illuminance 75.56 105.8 43.7 1.73 2.42 Race Track Illuminance 31.55 63.5 14.6 2.16 4.35

Specifications subject to change without notice.

STADIUM LIGHTING NOTES:

ALL STADIUM LIGHTING SHALL BE CONTROLLED PROGRAMMATICALLY VIA A WIRELESS

2. LIGHTING SHALL BE SET FOR NIGHT EVENTS TO TURN ON NO MORE THAN 30 MINUTES PRIOR TO THE SCHEDULED START OF THE EVENT, AND TO TURN OFF NO MORE THAN 30 MINUTES AFTER THE SCHEDULED END OF THE EVENT.

OWNERSHIP SHALL PROVIDE A SCHEDULE OF PLANNED NIGHT EVENTS, INCLUDING PLANNED LIGHTING START AND STOP TIMES, FOR EACH NEW SEASON OF OPERATION.

4. THE TOWNSHIP AND OWNERSHIP SHALL WORK TOGETHER ON SCHEDULING COMMUNITY EVENTS THAT WISH TO USE STADIUM LIGHTING, TO COORDINATE

MUTUALLY AGREED-UPON START AND STOP TIMES FOR STADIUM LIGHTING.

WiLLsport™ GFX Wireless Lighting Controls

Part # Description WS-GFX WiLLsport™ GFX Wireless Lighting System WS-GFX-WLC Wireless Lighting Console WS-GFX-SCORE Touchscreen + Tabletop/Wall Mount





WS-GFX-WLC

Specifications - Console

Input Power

Input Voltage

Operating

Environment

Radio

Highlights

The Willsport GFX Wireless Lighting Console is the central point of control for your lighting system. Boasting multiple user interface options and a powerful built-in lighting engine, this secure onsite device provides round-the-clock control of athletic lighting applications. The factorycommissioned lighting platform offers plug-and-play access to bold light shows and automated scheduling capabilities. With wired and wireless configuration options, it's suitable for both retrofit and new installations.

#### Features

- Designed, engineered, and assembled in Wisconsin, USA from
- premium domestic and imported components Factory commissioned
- Multiple touch screen mounting options
- Reliable wireless lighting system control
- Built-in entertainment programs Automated simple-scheduling features
- Sub-field zone control
- Local on-site security
- IP67 rated outdoor enclosure RGB lighting control ready

Specifications subject to change without notice. Rev. V08092022 Page: 2 of 13

13.2" H x 11.2" W x 7.7" D

(336.3 x 285.5 x 195.6 mm)

36W

120V AC

0 to 45 °C;

10 to 90% non-condensing

2.4 GHz CRMX

Willsport™ **KBX** LED LIGHTING W/ OPTIONAL **RPCX** REMOTE PWR-CTL SYSTEM

Intertek A Table 1 Tab



### Highlights

- IES files, photometric reports, and lighting simulations available from factory design
- Output options up to 115,000 lumens Easy driver and LED module access for technology upgrades and maintenance
- Wireless control options including entertainment, RGB, dimming, zones, and schedules
- Rugged aluminum chassis construction with integrated GlareKiller system

# Applications

Page: 2 of 8

- Indoor sports arenas and venues Retrofit and new installs
- Professional sports complexes
- Rugged aluminum chassis with excellent heat/impact resistance and hinged electrical
- Anodized light engine plate and heat sinks meet MIL-A-8625 Type II (Class 1 & 2)
- standards and are RoHS, REACH, ELV, and WEEE compliant High-grade stainless steel hardware for superior strength and corrosion resistance Driver components are fully encased in potting material for moisture and vibration

### resistance

- Bottom cabinet(s): Aluminum industrial power-control cabinet with NEMA 3R rating
- Construction & Finish (Optional Remote PWR-CTL)
- Small, medium, large, and custom cabinet configurations available Standard powder coat facilities are UL1332 (DTVV2) certified for application of organic finish coatings for outdoor enclosures

Top distribution hub(s): Polycarbonate enclosure with NEMA 1, 2, 4, 4X, and IP66 rating

High-grade stainless steel hardware for superior strength and corrosion resistance See drawings below for additional component and wiring details

# Specifications subject to change without notice. Rev. V12142022

# Lighting System Controls

automation for the lighting system.

WISCONSIN LIGHTING LAB\*

The intuitive user interface provides multiple points of control and

### Simple Scheduling Functionality Automate your field lighting with simple scheduling functionality builtinto the GFX lighting control system. Common scheduling examples

- Timer with 2-minute dim warning Sunrise, sunset, and/or time-triggered lighting events
- Recurring events (daily/weekly) Calendar event scheduling
- Factory-Commissioned Entertainment Programs Coordinated entertainment programs to add a show-stopping element
- **Lightning** All fixtures randomly turn ON/OFF to create a camera flash effect on the playing field.
- Tornado All fixtures adjust light levels to create a swirling effect around the playing field. Night Rider - All fixtures adjust light levels to create a back and forth
- effect across the playing field. • Pulse - All fixtures simultaneously increase and decrease light levels to create a pulsing effect on the playing field.

Scene Control

to your athletic facility.

Put focus on the action before/during/after the game with scene control.

- Gametime
- Player Intros Halftime Show
- National Anthem Game Over / Security Lighting

Multi-Field Control

- Utilize WiLL's GFX technology to control multiple fields or facility resources with the same system.
- · Wagon-wheel ballfield configurations
- Multi-field athletic complexes
- Multi-sport facilities Site support lighting (walkways, area lighting, etc)

Specifications & Typical Lumen Output

Note: Data based on 25°C ambient operating temperature.

Lumen Multiplier & Maintenance (Full WHITE)

Note: Values calculated according to IESNA TM-21-11 methodology.

(5N) 25° Narrow Sport

50' Height @ 0° Up Tilt

Photometric Diagrams

0.5 fc 2.0 fc 5.0 fc 10 fc 25 fc

Fixture Weight Fixture Weight System Watts Engine Drive Current Max R

Direct factory integration + support

Wireless and/or wired RGB lighting control

Great for accent + architectural applications

RGB Ready

Millions of colors

control to your GFX system.

**Indoor/Outdoor Sports** 

Enhance your lighting application with the addition of dynamic color

**LED Lighting Controls** 

7.0" H x 9.9" W x 0.9" D

(178mm x 252mm x 24mm)

18W max

12V/2A AC/DC Adapter supplied

0 to 45 °C;

10 to 90% non-condensing

802.11 a/b/g/n/ac

FCC, CE, & RoHS

13.24"

7.70"

Specifications - Touchscreen

**Dimensions** 

**Input Power** 

Input Voltage

Operating

Environment

Radio

Certifications

Dimensional Diagrams

Rev. V08092022 Page: 3 of 13

Indoor/Outdoor Sports



Meets Buy American Act requirements

Light Engine & Electrical

lighting transmittance

modes dimmable (optional)

Total harmonic distortion of 20% max

Always-on auxiliary power: 12VDC, 200mA

Licensed electrician required for installation

Power & Control Options

Power factor of 0.90 min

10kV per EN 61000-4-5

### Compliance & Warranty

- Designed, engineered, and manufactured in Wisconsin, USA from premium domestic and ETL Certification for UL STD 1598 & CSA STD C22.2 # 250.0 for dry/damp/wet locations Remote power-control: pending
- Standard 5-year limited warranty with extended factory warranties available
- Remote power-control industrial cabinet options from factory
- Pre-aimed adjustable mount according to factory lighting design

- Outdoor sports and entertainment facilities
- Hometown ball fields
- General high-output flood and area lighting

### Airports, military, and infrastructure projects

- Construction & Finish (Light Fixture)
- Proprietary anodized heat sink design with thermally isolated LED modules resulting in calculated L70 LED life over 200,000 hours
- Standard powder coat facilities are UL1332 (DTVV2) certified for application of organic finish coatings for outdoor enclosures
- RGB color mixing and DMX integrations
  - · Dynamic scene entertainment packages Synapse® wireless system for large-scale control of zones, dimming, schedules, and

Local specifying engineer recommended for product selection and local compliance

Premium high-efficiency Chip-on-Board (COB) LEDs wired and bonded directly to circuit

Self-sealing optical assembly constructed of optical-grade silicone with 93% typical

Isolated 0-10V dim-to-off with standby power ≤ 1.5W (standard) and PWM/3-timer-

Drivers include integral input Surge Protection of Differential Mode 6kV, Common Mode

board to deliver compact lumen density and added reliability

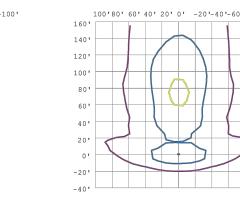
Standard AC input voltage of 120-277V 50/60 Hz; up to 480V available

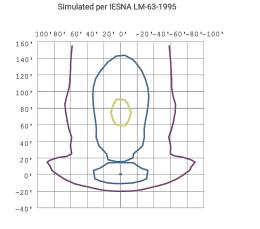
KB4&6: Thermally protected secondary 20kA surge suppression (optional)

KB8: Thermally protected secondary 10kA surge suppression (optional)

-40°C to +50°C ambient operating temperature options

- Wired and wireless configurations available Turnkey factory commissioning with on site support options
- Will offers one of the most comprehensive light pole, bracket, and arm catalogs in the
- Aluminum, steel, fiberglass, and concrete materials · Custom fabrication, finishing, and accessories available
- Dedicated light pole application support team

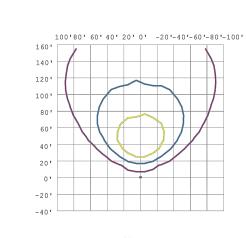




**Full RGB Tuning** 

White + RGB Combo Tuning

Note: Typical lumen values are based on lab and simulated photometric tests. Actual performance may differ resulting from optical configuration, color temp and CRI, glare management, owner environment, and



Input Current @ 208V (A)

Input Current @ 240V (A)

Input Current @ 347V (A)

Input Current @ 480V (A) 0.92 1.31

Input Current @ 277V (A

(45) 45° Narrow Sport 50' Height @ 0° Up Tilt



(70) 70° Medium Spor

Scheduling Functionality + Support

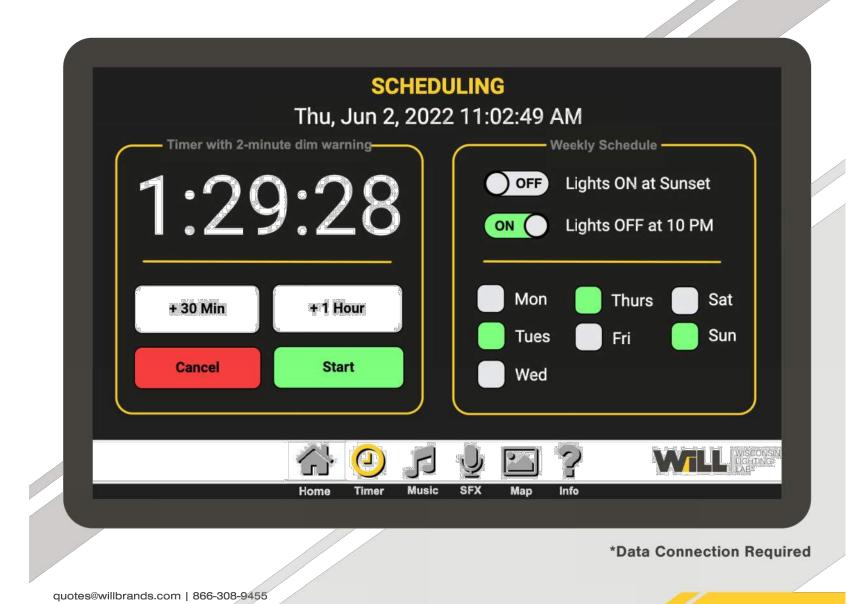
# Willsport

### SIMPLE SCHEDULING BUILT-IN

- Sunrise, Sunset, and/or Time-Triggered Lighting **Events**
- On/Off Timers with 2-Minute Dim Warning for **Facility Users**

**FACTORY SUPPORTED SCHEDULING SERVICES\*** 

- Calendar Event Scheduling
- Recurring Events (Daily/Weekly/ Monthly)
- Contact WiLL's Dedicated Factory **Support Team**
- applications@willbrands.com
- (866) 308-9455



### **SITE LIGHTING NOTES:**

- ALL SITE LIGHTING SHALL BE CONTROLLED PROGRAMMATICALLY VIA A WIRELESS
- CONTROLLER. LIGHTING SHALL BE PROGRAMMED TO AUTOMATICALLY TURN ON WHEN AMBIENT LIGHT LEVELS FALL BELOW A PRESET DUSK LEVEL, AND TO TURN OFF WHEN LIGHT LEVELS RISE ABOVE THE DUSK THRESHOLD.
- LIGHTING SHALL BE PROGRAMMED TO DIM DOWN TO SECURITY LIGHTING LEVELS AFTER PROGRAMMED OPERATIONAL HOURS.
- SENSORS WILL BE UTILIZED TO DETECT MOTION IN PARKING AND CIRCULATION AREAS. IF A PEDESTRIAN OR VEHICLE IS DETECTED IN CIRCULATION AREAS AFTER OPERATIONAL HOURS, LIGHTING WILL AUTOMATICALLY INCREASE TO SAFE OPERATIONAL LEVELS.
- OWNERSHIP SHALL PROVIDE THE TOWNSHIP WITH PLANNED OPERATIONAL HOURS FOR EACH NEW SEASON OF OPERATION.



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CLIENT **JR MILITELLO** 

**REALTY** 

268 MAIN STREET SUITE 300

BUFFALO, NY 14202

PLYMOUTH, MI

PROJECT TITLE

**NORTHVILLE DOWNS AT PLYMOUTH TOWNSHIP** FIVE MILE AND RIDGE ROAD

REVISIONS

ORIGINAL ISSUE DATE: MARCH 31, 2023

DRAWING TITLE **STADIUM** LIGHTING **CONTROLS** 

PEA JOB NO.	2022-1338
P.M.	ВК
DN.	BLA
DES.	BK

