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PLANNING COMMISSION MEETING AGENDA REGULAR MEETING

David Lambert, Chairman, Marianna Perakis, Vice Chairman
Toby Buechner, Carlton Faison, Michael W. Hutson, Tom Krent,
Lakshmi Malalahalli, Sadek Rahman and John J. Tagle

May 24, 2022

7:00 P.M.

Council Chambers

1. ROLL CALL
2. APPROVAL OF AGENDA
3. APPROVAL OF MINUTES – May 10, 2022
4. PUBLIC COMMENT – For Items Not on the Agenda

PUBLIC HEARING

5. PUBLIC HEARING – SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0016) - Proposed Automark Collision Center, North side of Maplelawn, West of Crooks (1744 Maplelawn), Section 29, Currently Zoned IB (Integrated Industrial & Business) District

CONCEPTUAL SITE PLAN

6. TROY CIVIC CENTER PAVILION – Conceptual Design

PRELIMINARY SITE PLAN REVIEW

7. PRELIMINARY SITE PLAN APPROVAL (File Number SP2019-0041) – Proposed Lange View Estates, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District

OTHER ITEMS

8. PUBLIC COMMENTS – For Items on the Agenda
9. PLANNING COMMISSION COMMENT
10. ADJOURN

NOTICE: People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations

Televised Live, Government Channel WTRY (10 WideOpenWest and 17 Comcast) Replayed Wednesdays 3:00 pm, 6:00 pm and 11:00 pm

Chair Lambert called the Regular meeting of the Troy City Planning Commission to order at 7:00 p.m. on May 10, 2022, in the Council Chamber of the Troy City Hall. Chair Lambert and Vice Chair Perakis presented opening remarks relative to the role of the Planning Commission and procedure of tonight's meeting.

1. ROLL CALL

Present:

Toby Buechner
Carlton M. Faison
Tom Krent
David Lambert
Marianna Perakis
Sadek Rahman
John J. Tagle

Absent:

Michael W. Hutson
Lakshmi Malalahalli

Also Present:

R. Brent Savidant, Community Development Director
Ben Carlisle, Carlisle Wortman Associates
Julie Quinlan Dufrane, Assistant City Attorney
Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

Resolution # PC-2022-05-026

Moved by: Tagle
Support by: Rahman

RESOLVED, To approve the Agenda as prepared.

Yes: All present (7)
Absent: Hutson, Malalahalli

MOTION CARRIED

3. APPROVAL OF MINUTES – April 26, 2022

Ms. Perakis asked that the April 26, 2022 draft minutes reflect a revision on page 3, first paragraph, third sentence, with respect to the base price of homes, to read: "He [Mr. Michael] indicated a price range of \$500,000 to \$800,000, plus additional costs for structural options available to purchaser."

Resolution # PC-2022-05-027

Moved by: Perakis

Support by: Krent

RESOLVED, To approve the minutes of the April 26, 2022 Regular meeting as revised.

Yes: All present (7)

Absent: Hutson, Malalahalli

MOTION CARRIED4. **PUBLIC COMMENT** – For Items Not on the Agenda

There was no one present who wished to speak.

PUBLIC HEARING5. **PUBLIC HEARING - PRELIMINARY SITE PLAN REVIEW (SP JPLN2021-0028)** – Proposed Golden Villas One Family Residential Cluster, South side of Square Lake, West of Dequindre (PIN 88-20-12-200-031 and 88-20-12-200-035), Section 12, Currently Zoned R-1C (One Family Residential) District

Mr. Carlisle reviewed the background of the Preliminary Site Plan application for Golden Villas cluster development as relates to location, parcel size, adjacent zoning, access and natural features. Mr. Carlisle reported eight (8) units could be constructed as indicated on the parallel plan, and the applicant is seeking four (4) additional units above the parallel plan for a total of twelve (12) by doing a cluster. He said the plan preserves 33% of the total site as open space and 1,900 square foot homes with first floor master bedroom and bath would be constructed. Mr. Carlisle said the 33% of open space is a collar around the property and a T-turnaround would be provided at the end of the road.

Mr. Carlisle reported the application is deficient twenty (20) trees along Square Lake. He noted the applicant has resubmitted a landscape plan to correct the deficiency but at this time the administration has not had the opportunity to review it.

Mr. Carlisle addressed the applicant's request to seek waivers of the rear lot and perimeter setback requirements to construct decks. He addressed elevations and building materials. He said the applicant is required to submit three diverse elevations and has only provided one elevation. Mr. Carlisle reviewed the Cluster Standards as set forth in Section 10.04.I of the Zoning Ordinance.

In summary, Mr. Carlisle said the Planning Commission shall determine if requirements are met to qualify for cluster development option, if the required standards have been met, and if the additional number of units is commensurate with open space being preserved and the provision of smaller homes. He asked the Planning Commission to consider the applicant's request to seek relief for the required setbacks for the construction of decks, and that the applicant provide two additional housing elevations and the required trees along Square Lake.

Discussion among Administration and Board members:

- Housing elevations; 1,900 square foot maximum, diversity, first floor master bedroom.
- Open space; amenities, grading, preservation of trees, buffer, maintenance, as relates to parallel plan.
- Parallel plan vs cluster development option; as relates to open space, setback encroachments for decks, size of homes, lot size, connectivity to residential to the south.
- Potential to require additional trees on site.

Mr. Savidant said the applicant would be required to submit an Open Space Preservation Agreement prior to Final Site Plan approval. He said the applicant is not required to plant additional trees under the Woodland Protection Ordinance and by Resolution only could the Planning Commission request additional trees.

Present were owner/applicant Sam DiMercurio and John Thompson of Professional Engineering Association (PEA).

Mr. Thompson said the open space would not be an active area but a natural buffer collar around the property, enhanced with additional trees and, with time, an improved buffer for properties. He stated the amenities offered are the 33% preservation of open space and the construction of 1,900 square foot homes in response to the City desire for smaller homes. Mr. Thompson said they would engage the project architect to prepare additional elevations for administrative approval.

Mr. DiMercurio estimated the price point for homes on the market in the subdivision located south of the proposed development at \$800,000 to \$900,000. He indicated the price point for homes in the cluster development would be \$500,000 to \$600,000. Mr. DiMercurio addressed building materials as brick, Hardie board and lap siding. It was brought to his attention that vinyl siding is not a preferred material.

PUBLIC HEARING OPENED

- Murthy Kowsika, 5874 Colleen; addressed traffic concerns should the proposed development connect with the subdivision to the south.

PUBLIC HEARING CLOSED

There was discussion on:

- No vehicular connection to subdivision to the south with T-turnaround as proposed.
- Open space preservation; as relates to amenity features.
- Cluster development calculations, as relates to bonus density.
- Administrative approval of submission of additional elevations.
- Confirmation of home size; designation of 1,900 square feet would be inclusive in Open Space Preservation Agreement.
- Price point of homes; market-driven, high construction costs, whether consideration of Planning Commission in review process.

Ms. Perakis voiced concerns with the price point of the homes, that the application does not meet the Open Space requirements of the Zoning Ordinance as relates to recreational facilities and the preservation of common open space or creation of natural features. She said the perimeter buffer along Square Lake and the berm on the west side of the development are natural buffers.

Resolution # PC-2022-05-028

Moved by: Krent

Support by: Tagle

RESOLVED, The Planning Commission hereby recommends to the City Council that the proposed Golden Villas Site Condominium (One Family Residential Cluster), 12 units/lots, South side of Square Lake, West of Dequindre (Parcels 88-20-12-200-031 and 88-20-12-200-035), Section 12, approximately 3.0 acres in size, Currently Zoned R-1C (One Family Residential) District, be approved for the following reasons:

1. The cluster development better protects the adjacent properties than if the site were not developed as a cluster.
2. The cluster development is compatible with adjacent properties.
3. The site can be adequately served with municipal water and sewer.
4. The cluster development preserves 33% open space, to remain open space in perpetuity.
5. The cluster development offers 1,900 square foot units with first floor master bedroom and bath, a housing type desired in Troy.

BE IT FURTHER RESOLVED, The Planning Commission recommends approval of granting relief from the required rear yard setback and required perimeter setback as per Section 10.04.E.5, as outlined in the report.

BE IT FINALLY RESOLVED, The Planning Commission offers the following design considerations:

1. Applicant shall provide two (2) additional housing elevation options.
2. Applicant shall provide twenty (20) additional trees along Square Lake Road.
3. Applicant will not use vinyl siding on any part of the exterior of the homes.
4. Applicant shall provide an Open Space Preservation Agreement prior to Final Site Plan approval, which ultimately includes construction of 1,900 square foot homes with master bedroom and bath on the main floor.

Discussion on the motion on the floor.

Chair Lambert addressed the homes as relates to price point and desired square footage. He stated he's not necessarily enthused by the proposed green space but it's a better option than what green space would be provided with a conventional development plan.

Mr. Buechner noted it appears there is no opposition from neighboring properties of the proposed development.

Vote on the motion on the floor.

Yes: Buechner, Faison, Krent, Lambert, Rahman, Tagle
No: Perakis
Absent: Hutson, Malalahalli

MOTION CARRIED**PRELIMINARY SITE PLAN REVIEW**

6. PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0002) – Proposed Norton and Quill Site Condominium, Northwest Corner of Norton Street and Quill Creek Drive (PIN 88-20-03-251-043 and 88-20-03-251-044), Section 3, Currently Zoned R-1B (One Family Residential) District

Mr. Carlisle reviewed the Norton and Quill Preliminary Site Condominium application as relates to location, number of units, parcels, lot size, access, surrounding zoning and natural resources. Mr. Carlisle addressed rear yard setback requirements for units 3 and 4 and noted compliance could easily be rectified with submission of a revised plan. He addressed the stormwater management facility as relates to location between units 1 and 2, access and maintenance. Mr. Carlisle addressed access to 6443 Norton through one of the newly created lots, indicating an easement reviewed by the City Attorney and recorded by Oakland County would be required.

Mr. Carlisle said the applicant is required to provide a tree survey and mitigation requirements, elevations of all four sides of the homes and building materials, and the landscape plan is required to be stamped by a licensed Landscape Architect.

In summary, Mr. Carlisle said the Planning Commission can either allow the applicant to address the outstanding items as identified in his report dated May 6, 2022 as part of Final Site Plan review, or the application can be postponed until those items are addressed.

Discussion between administration and Board members:

- Driveway encroachment on property to the north (6443 Norton).
- Drainage as relates to existing creek.

Present were Thomas Alsobrooks and Aaron O'Connor representing Mauro Engineering.

Mr. Alsobrooks stated the existing gravel driveway at 6443 Norton would be removed and relocated for access to the home's side entry garage. He affirmed an easement would not be required.

Mr. O'Connor said conceptual elevations were submitted and they would follow through with the required elevations to meet requirements of the Zoning Ordinance. He addressed building materials as relates to different floor plans; brick, Hardie board, lap siding. He indicated no siding would be used on any of the front elevations. Mr. O'Connor clarified they were not the builder for the homes on Quill Creek and indicated the homes for the proposed development would be a different style but similar in size.

Chair Lambert opened the floor for public comment.

- Jay Welch, 6408 Montclair; addressed City notice to residents; expressed concerns with existing drainage, flooding, effect of fill by previous adjacent property owner.
- Danny Thieu, 628 Quill Creek; addressed existing drainage, flooding issues.
- Heather Welch, 6408 Montclair; addressed damage to their fence and neighbor's fence resulting from drainage issues.

Chair Lambert closed the floor for public comment.

Mr. Savidant explained a site condominium application does not require a Public Hearing and a notice to residents is not required by law. Mr. Savidant said the notice sent to residents on this item was mailed as a courtesy and he apologized for the lateness. He briefly explained the process of building under the Site Condominium Act.

Mr. Savidant said if the application is granted approval this evening, the Engineering Department would review the application during the Final Site Plan approval process. He said it's City standard that a new development does not exacerbate existing drainage issues, and he indicated that typically during this process existing drainage issues are alleviated.

There was discussion on:

- Architectural features and building materials; potential to request ranch style homes only and request no vinyl siding.
- Detention basin; potential improvement for existing drainage issues.
- Access drive to detention basin; location, maintenance, access easement agreement with City.
- Driveway at 6443 Norton; either eliminate designation on a revised site plan, or reference in Resolution that access easement is required should driveway remain on site.

Ms. Dufrane addressed how the driveway at 6443 Norton should be addressed in the Resolution, as referenced above during discussion.

Ms. Dufrane addressed the difference in discretionary standards of a cluster development application and a site condominium application. She said she is less comfortable with the Planning Commission placing conditions on a site condominium application as relates to style of homes and building materials. Ms. Dufrane said conditions to a site condominium application should be reasonably related to the health, safety and welfare of the residents.

Resolution # PC-2022-05-029

Moved by: Perakis

Support by: Buechner

RESOLVED, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for Norton and Quill Site Condominium, 4 units/lots, Northwest corner of Norton Street and Quill Creek Drive (Parcels 88-20-03-251-043 and 88-20-03-251-044), Section 3, approximately 1.786 acres in size, Currently Zoned R-1B (One Family Residential) District, be granted, subject to the following:

1. Provide tree survey and mitigation requirements.
2. Provide easement for the access drive to detention basin.
3. Submit revised plan with 45-foot rear setbacks.
4. Have landscape plan prepared by licensed Landscape Architect.
5. Provide elevations of all four sides and provide materials.
- 6 Resubmit the plan showing the elimination of the driveway at 6443 Norton.

Yes: All present (7)

Absent: Hutson, Malalahalli

MOTION CARRIED**OTHER ITEMS****7. PUBLIC COMMENT – For Items on the Agenda**

There was no one present who wished to speak.

8. PLANNING COMMISSION COMMENT

There were general comments, some relating to:

- Price point of homes; consideration by Planning Commission.
- National Planning Conference.
 - Attended by Mr. Savidant and Mr. Carlisle.
 - Induction of Richard Carlisle into the AICP College of Fellows.
- City signage for proposed developments.
- Federally funded park project at Civic Center and Town Center Drives.
 - Presentation of concept plan at next Planning Commission meeting.

9. ADJOURN

The Regular meeting of the Planning Commission adjourned at 8:53 p.m.

Respectfully submitted,

David Lambert, Chair

Kathy L. Czarnecki, Recording Secretary

<https://d.docs.live.net/2f7ed4fe5f664ea8/Documents/Kathy/COT Planning Commission Minutes/2022/2022 05 10 Draft.docx>

5. PUBLIC HEARING – SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0016) - Proposed Automark Collision Center, North side of Mapelawn, West of Crooks (1744 Mapelawn), Section 29, Currently Zoned IB (Integrated Industrial & Business) District

DATE: May 19, 2022

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PUBLIC HEARING – SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0016) - Proposed Automark Collision Center, North side of Maplelawn, West of Crooks (1744 Maplelawn), Section 29, Currently Zoned IB (Integrated Industrial & Business) District

The petitioner Automark Collision Center submitted the above referenced Special Use Approval and Preliminary Site Plan Approval application to convert and existing building into an auto collision repair shop. The requirement for Special Use Approval is triggered because the property is located within 300 feet of residential zoning district. In this instance there is an apartment complex to the north that is zoned MF (Multiple Family) Zoning District that is located approximately 150 feet to the north.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the application. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and recommends approval of the project, as noted.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.
3. Special Use Application.

G:\SPECIAL USE\SU JPLN2022-0016 AUTOMARK COLLISION CENTER\PC Memo 05 24 2022.docx

PROPOSED RESOLUTION

PUBLIC HEARING – SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW (SP JPLN2022-0016) - Proposed Automark Collision Center, North side of Maplelawn, West of Crooks (1744 Maplelawn), Section 29, Currently Zoned IB (Integrated Industrial & Business) District

Resolution # PC-2022-05-

Moved by:

Seconded by:

RESOLVED, That Special Use Approval and Preliminary Site Plan Approval for the proposed Automark Collision Center, North side of Maplelawn, West of Crooks (1744 Maplelawn), Section 29, Currently Zoned IB (Integrated Industrial & Business) District, be (granted, subject to the following conditions):

1. Repair and restripe parking lot and provide required barrier free spaces;
2. Provide bicycle parking.
3. Install two street trees
4. Screen outdoor storage area.
5. All equipment including hydraulic hoists, pits, lubrication, and repair facilities shall be entirely enclosed within building.
6. All repair and maintenance activities shall be performed entirely within enclosed building.

_____) or

(denied, for the following reasons: _____) or

(postponed, for the following reasons: _____)

Yes:

No:

Absent:

MOTION CARRIED / FAILED



Carlisle | Wortman

ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: May 17, 2022

**Preliminary Site Plan and Special Use Review
For
City of Troy, Michigan**

Project Name:	Automark Collision
Plan Date:	April 22, 2022
Location:	1744 Maplelawn
Zoning:	IB, Integrated Industrial and Business
Action Requested:	Site Plan and Special Use Approval

PROJECT AND SITE DESCRIPTION

The applicant is proposing to convert an existing building at 1744 Maple Lawn into an auto collision repair shop. Outside of new signage, the only change to the site and building that the applicant is proposing is the installation of a new overhead door. Automobile repair is a permitted use in the IB, Integrated Industrial and Business District; however, since this use is located within 300 feet of residentially zoned property, the application is being reviewed as a Special Use (per Section 6.26).

Location of Subject Property:

1744 Maplawn



Proposed Use of Subject Parcel:

Auto Collision Repair Shop

Current Zoning:

The property is zoned IB, Integrated Industrial and Business

Surrounding Property Details

Direction	Zoning	Use
North	MF, Multiple Family	Multiple Family Apartments –
South	IB, Integrated Industrial and Business	Office/Light Industrial/Warehouse
East	IB, Integrated Industrial and Business	Office/Light Industrial/Warehouse
West	IB, Integrated Industrial and Business	Office/Light Industrial/Warehouse

SITE AND BUILDING ARRANGEMENT

The applicant isn't proposing any change to the building or site, other than installation of an overhead door. However, we have some recommended site improvements listed below.

SITE ACCESS AND CIRCULATION

Existing site access and circulation remain.

Items to be Addressed: None

PARKING

Auto repairs require the following parking as set forth in table 13.06.a:

	Required	Provided
2 spaces for each service bay, plus 1 space for each tow truck if applicable, plus adequate spaces for overnight parking, plus 1 space per 1 employee on the largest typical shift	10 bays + 15 = 35 spaces	Over 35 but needs restriping
Barrier Free	2	Needs restriping
Bicycle Parking	0	1
Total	35 automobile spaces including 2 barrier free spaces + 2 bicycle	Needs restriping and include bicycle parking

Parking is sufficient but due to parking lot disrepair and worn-out striping it is difficult to distinguish barrier free. The applicant should repair and restripe parking lot and provide bicycle parking.

Items to be Addressed: 1). Repair and restripe parking lot and provide required barrier free spaces; and 2). Provide bicycle parking.

LANDSCAPING

The applicant is not proposing any landscape improvements. Applicant should install two street trees to bring the site more into landscaping compliance.

Items to be Addressed: Install two street trees.

PHOTOMETRICS

The applicant is not proposing any new building or parking lot lighting. If the applicant proposes any lighting improvements, they should comply with lighting ordinance requirements.

Items to be Addressed: None

ELEVATIONS AND FLOOR PLANS

The applicant is not proposing any changes to the elevations and floorplans.

Items to be Addressed: None.

AUTO REPAIR STANDARDS

There are specific provisions for auto repair set forth in Section 6.26:

- A. Dismantled, wrecked, or inoperable vehicles or any vehicle parts or scrap of any kind shall not be stored outdoors for a period exceeding sixty (60) days. Outdoor storage shall be enclosed by an opaque fence up to eight (8) feet in height and/or landscape screening meeting the standards set forth in Section 13.02.B.**

In conversations with the applicant they propose to store dismantled cars in the rear of the site behind the building. The applicant is required to provide screening of this area.

- B. The minimum lot area shall be twenty thousand (20,000) square feet.**

The site is greater than 20,000 sq/ft.

- C. All equipment including hydraulic hoists, pits, lubrication, and repair facilities shall be entirely enclosed within a building.**

All equipment shall be located in the building.

- D. All repair and maintenance activities shall be performed entirely within an enclosed building.**

All work shall be located in the building.

- E. Retail sales shall be limited to those items necessary to carry out the vehicle repair occurring on the subject site.**

The applicant doesn't indicate any retail sales.

- F. Any proposed vehicle repair use within three hundred (300) feet (measured from the nearest lot line to the nearest lot line on a straight-line basis) to any residential zoning district or any parcel used for residential purposes shall be reviewed as a special use as set forth in Article 9.**

The application is being reviewed as a special use.

SPECIAL USE STANDARDS

For any special use, according to Section 9.02.D, the Planning Commission shall “...review the request, supplementary materials either in support or opposition thereto, as well as the Planning Department’s report, at a Public Hearing established for that purpose, and shall either grant or deny the request, table action on the request, or grant the request subject to specific conditions.”

Section 9.03 states that before approving any requests for Special Use Approval, the Planning Commission shall consider:

1. *Compatibility with Adjacent Uses.*
2. *Compatibility with the Master Plan.*
3. *Traffic Impact.*
4. *Impact on Public Services.*
5. *Compliance with Zoning Ordinance Standards.*
6. *Impact on the Overall Environment. The proposed Special Use shall no*
7. *Special Use Approval Specific Requirements.*

We support the special use and find:

1. Repurposing of a building is a best management practice, that promotes sustainability. The repurposing of the building would reduce environmental impact than tearing the building down and building a new one.
2. The IB District provides for a variety of uses including automobile repair.
3. There is a number of auto-oriented uses along Maplelawn. The use of automobile repair is compatible with surrounding automobile, office, light industrial and warehouse uses.
4. The proposed repurposing should not require any additional public services that required for a permitted use.

Items to be addressed: None

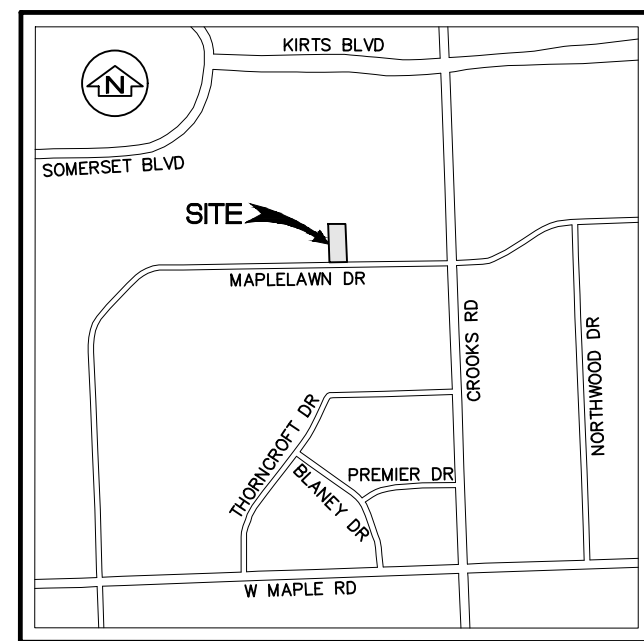
RECOMMENDATION

We support the reinvestment in the site. We recommend preliminary site plan and special use approval with the following conditions:

1. *Repair and restripe parking lot and provide required barrier free spaces; and 2). Provide bicycle parking.*
2. *Install two street trees*
3. *Screen outdoor storage area*
4. *All equipment including hydraulic hoists, pits, lubrication, and repair facilities shall be entirely enclosed within building.*
5. *All repair and maintenance activities shall be performed entirely within enclosed building.*



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP



LOCATION MAP

LEGAL DESCRIPTION

Land in the City of Troy, Oakland County, MI, described as follows:

Lot(s) 4, except the West 175.00 feet and the West 85 feet of Lot 3 of MAPLELAWN INDUSTRIAL PARK according to the plat thereof recorded in Liber 119 of Plats, Page 10 of Oakland County Records.

1744 Maplelawn Drive
Tax ID: 20-29-401-017

BASIS OF BEARING NOTE

The basis of bearing for this survey was established by the aforesaid recorded Plat.

TITLE NOTES

- Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by making inquiry of persons in possession of the Land.
- Easements, encumbrances, or claims thereof, not shown by the Public Records.
- Mortgage in the original amount of \$2,500,000.00 executed by Premier Investment Property, L.L.C., a Michigan limited liability company to Henry J. Crawford, dated February 23, 2007, recorded March 2, 2007, in Liber 38826, page 143.
- Covenants, conditions, restrictions and other provisions but omitting restrictions, if any, based on race, color, religion, sex, handicap, familial status or national origin as contained in instrument recorded in Liber 4833, page 757. [BUILDING SETBACK RESTRICTIONS ARE SHOWN].
- Permanent Easement in favor of the City of Troy and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 33503, page 661. [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
- Detroit Edison Overhead Easement (Right of Way) No. 28919832-28919837 in favor of The Detroit Edison Company and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 41198, page 702. [EASEMENT IS WITHIN & CROSSES THE SURVEYED LAND AND ITS APPROXIMATE LOCATION IS SHOWN].
- Easement(s), Restrictions and/or Setback Lines, if any, as disclosed by the recorded plat. [LOCATION OF EASEMENT WITHIN THE SURVEYED LAND IS SHOWN].
- Interest of others in oil, gas and mineral rights, if any, whether or not recorded in the public records.
- Interest, if any, of the United States, State of Michigan, or any political subdivision thereof, in the oil, gas and minerals in and under and that may be produced from the captioned land.
- Rights of tenants, if any, under any unrecorded leases.

ALL EXCEPTIONS SHOWN OR NOTED ON THIS SURVEY WERE OBTAINED FROM TITLE COMMITMENT NO. 961664, WITH A COMMITMENT DATE OF 01-14-2022, ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY.

SITE DATA

Gross Land Area: 49,371 Square Feet or 1.133 Acres.
Zoned: IB (Integrated Industrial Business District)
Building Setbacks:
Front= 30'
Sides= 10' (least); 20' (total)
Rear= 20'

Max. Building Height permitted: 4 stories/50'

Total Striped Parking: 30 spaces including 4 barrier free (handicap) spaces.

The above setback & height requirements were obtained from the City of X Zoning Ordinance.

NOTE: The setbacks & height restrictions noted above are for reference purposes only and should not be used for design or construction and should not be used to determine compliance. A surveyor cannot make a certification on the basis of an interpretation or opinion of another party. A zoning endorsement letter should be obtained from Shelby Township to insure conformity as well as make a final determination of the required building setback & height requirements.

FLOOD HAZARD NOTE

The Property described on this survey does not lie within a Special Flood Hazard Area as defined by the Federal Emergency Management Agency; the property lies within Zone X of the current available Flood Insurance Rate Map identified as Map No. 26125C0541F with an effective date of 09-29-2006.

CEMETERY NOTE

There was no observable evidence of cemeteries or burial grounds within the subject property.

TABLE A NOTES

16: There was no observable evidence of current earth moving work, building construction or building additions observed in the process of conducting the fieldwork.

17: There are no known proposed changes in street right-of-way lines available from the controlling Jurisdiction.

17: There was no observable evidence of recent street or sidewalk construction or repairs observed in the process of conducting the fieldwork.

18: Improvements within offsite easements or servitudes as provided by the Title Company are shown within 25 feet of the subject land only.

SURVEYOR'S CERTIFICATION

To:

Automark Collision Centers, LLC, a Michigan Limited Liability Company,
on behalf of an entity to be named at a later date
Premier Investment Property, L.L.C., a Michigan limited liability company
First American Title Insurance Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b), 7(c), 8, 9, 11(a), 13, 14, 16, 17, 18 & 19 of Table A thereof.

The field work was completed on 03-24-2022.

Kevin Christopher Navaroli
Kevin Christopher Navaroli, P.S.
No. 4001053503
Date of Plat or Map: 04-19-2022
Revised:



DRAWN BY:

A.G.

APPROVED BY:

K.N./R.FRAUS

EMAIL:

rfraus@nfe-engr.com

DATE ISSUED:

04-19-2022

SCALE:

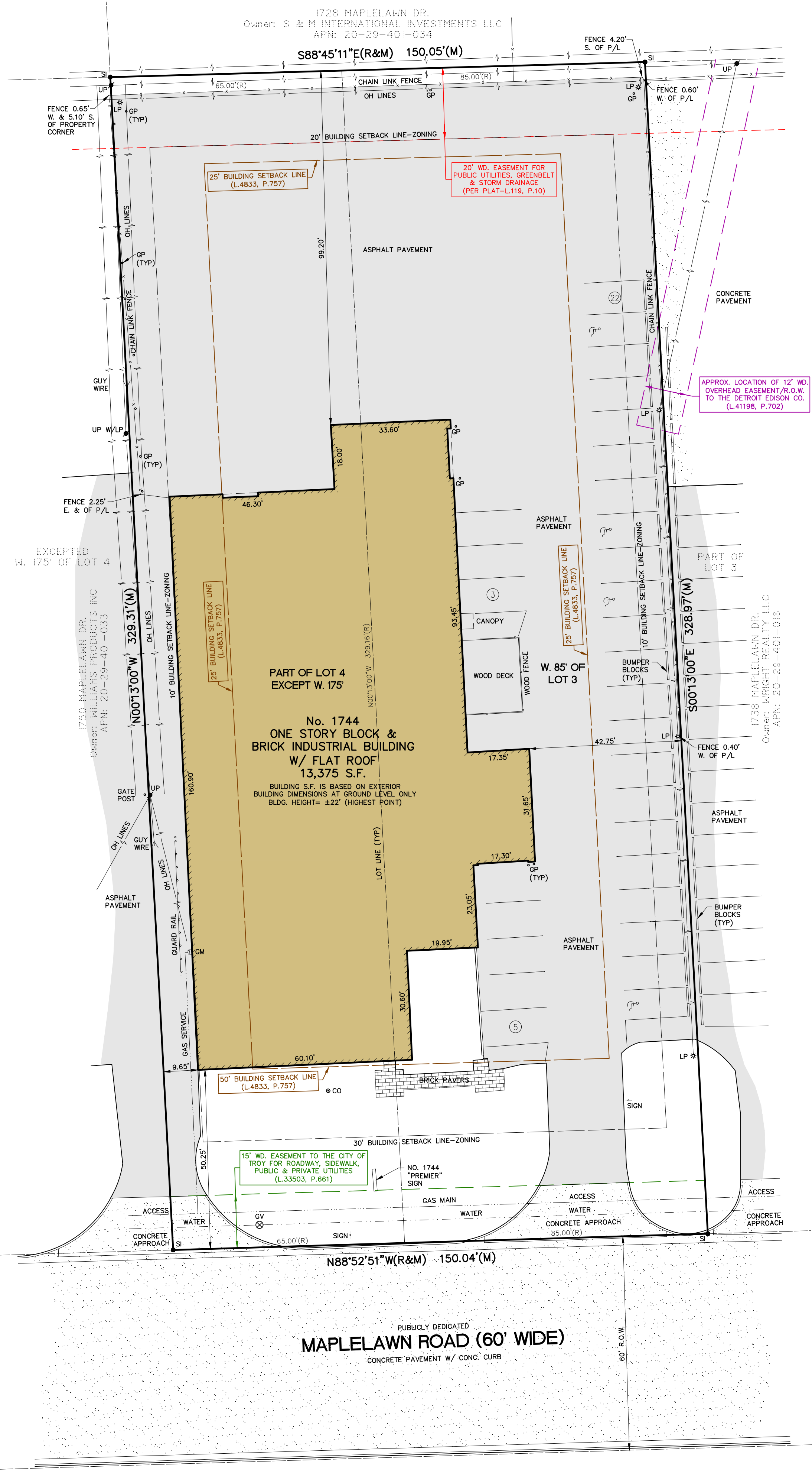
1"=20'

NFE JOB NO.

M901

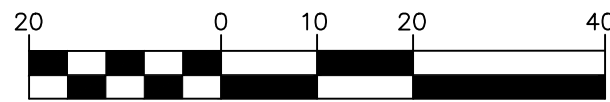
SHEET NO.

1 of 1



LEGEND

AC	= Air Conditioner
ASPH	= Asphalt
CATV	= Cable Television/Box/Riser
CB	= Catch Basin
CO	= Clean Out
CONC	= Concrete
E MH	= Electric Manhole
EM	= Electric Meter
EC	= Electric Conduit/Riser
FI	= Found Iron
FIP	= Found Iron Pipe
FMON	= Found Monument
G	= Gas Service/Gas Main
GL	= Ground Light
GM	= Gas Meter
GP	= Guard Post
GV	= Gate Valve
HIO	= Hydrant
LP	= Light Pole
L/S	= Landscape
MH	= Manhole
MON	= Monument
MW	= Monitor Well
OH LINES	= Overhead Lines
P	= Phone/Box/Riser
PH	= Physically Handicapped
PIV	= Post Indicator Valve
P/L	= Property Line
PM	= Parking Meter
ROW	= Right of Way
SAN	= Sanitary Manhole
SB	= Stop Box (Water)
SH	= Storm Manhole
S.I.	= Set Iron
SO	= Shutoff (Water)
STM	= Storm Sewer
T MH	= Telephone Manhole
TRANS	= Transformer
UP	= Utility Pole
WM	= Water Main
(R)	= Record Measurement
(M)	= Surveyed Measurement
(C)	= Calculated



UTILITY NOTE

All utilities are underground unless otherwise noted.

The utilities shown on this survey were determined by field observation. All locations are approximate. The location of any other underground services which may exist can only be depicted if a Utility Plan is furnished to the surveyor.

NOTE: DTE has new regulations that may impact development outside their easement or the public right of way. Client shall contact DTE to determine the "New Structures and Power Line" requirements as they may apply to any future building or renovation of a structure. DTE Energy can be contacted at 800-477-4747.





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6. TROY CIVIC CENTER PAVILION – Conceptual Design

Date: May 17, 2022

To: Planning Commission

From: R. Brent Savidant, Community Development Director

Subject: Troy Civic Center Pavilion – Conceptual Design

The City of Troy continually receives requests for a public gathering space for residents and business people, as Troy lacks a traditional downtown. The Civic Center Campus has been recognized as a location to provide this desired space. This has been most recently substantiated by the Troy Parks and Recreation Advisory Board, Green Space Sub-Committee by stating, “As with all of our parks, the development of the Troy Civic Center must be considered as an area for community interaction that embraces the natural landscape that is vital to preserving the ecosystem. The community must move forward from thinking that managing our parks is just cutting the grass or picking up the garbage. All of our parks should be considered as regional community centers with the development of the Troy Civic Center being the central legacy showpiece and evidence of our planning for tomorrow.” (Troy Parks and Recreation Advisory Board, Green Space Sub-Committee Final Report, P.25). The Troy Community Foundation also recognized this opportunity and provided renderings to engage the community in a large-scale project that they intended to participate in. The idea and renderings were used in the successful capture of a Community Project Funding grant of \$1.5 million.

During these efforts the City of Troy released a resident survey that resulted in a high percentage of respondents indicating a desire for additional winter recreation opportunities and specifically an ice-skating facility. City Administration responded to this desire by incorporating an ice-skating facility into the pavilion design.

City Administration engaged OHM Advisors, one of its current consultants, to perform a feasibility study for the addition of a pavilion and ice-skating facility. City Administration and OHM visited several similar facilities in the Metro-Detroit region to obtain best practices to successfully design a facility for Troy.

The pavilion and ice-skating facility conceptual design was presented to the Parks and Recreation Advisory Board on April 28, 2022. All comments were very positive and there was unanimous support to bring the concept to design and eventually construction. On May 9, 2022 the concept was presented to City Council and it was warmly received. City Council approved a proposal from OHM to complete the schematic design of Troy Civic Center Pavilion and Ice-Skating Facility

The next step in the engagement process is to present the conceptual plan to the Planning Commission for feedback. Public Works Director Kurt Bovensiepe will present the conceptual plan to the Planning Commission. No action is required at this time. A Preliminary Site Plan will be presented to the Planning Commission for review in the future.

Attachments:

1. Civic Center Public Space Pavilion Concept Design



1,189 0 595 1,189 Feet



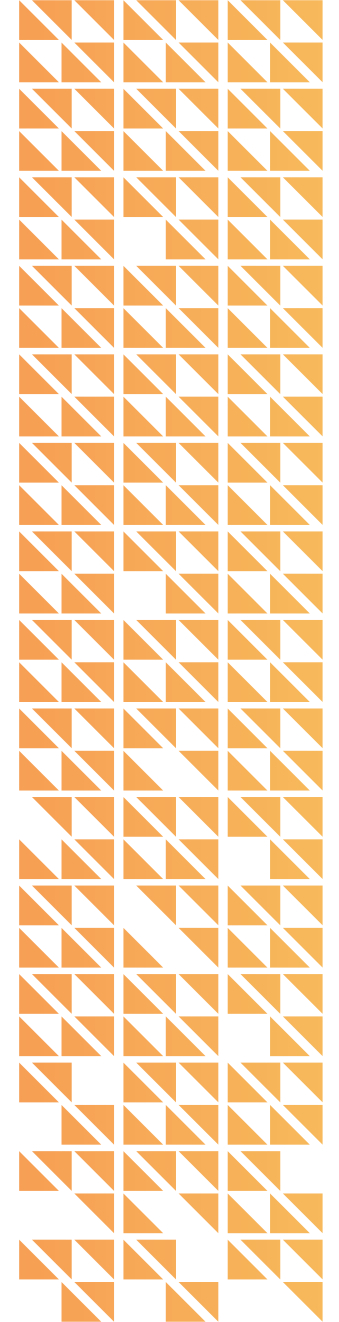
Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



City of Troy

Civic Center Public Space Pavilion Concept Design

Developed by **OHM** Advisors® | April 2022



Goals & Objectives

Working with the City of Troy, we understand that this project is intended to meet the needs and aspirations of the Troy community.



Continue the momentum from the Town Center Drive Public Space.



Meet community desires.



Expand space for larger events and activities.



Create connections to surrounding trails, open spaces and recreation facilities.



Activate the space through all four seasons.



DESIGN INSPIRATION

River Skate Concept and Natural Site Integration



DESIGN CONCEPT \\\ INSPIRATION



DESIGN Conceptual Site Plan



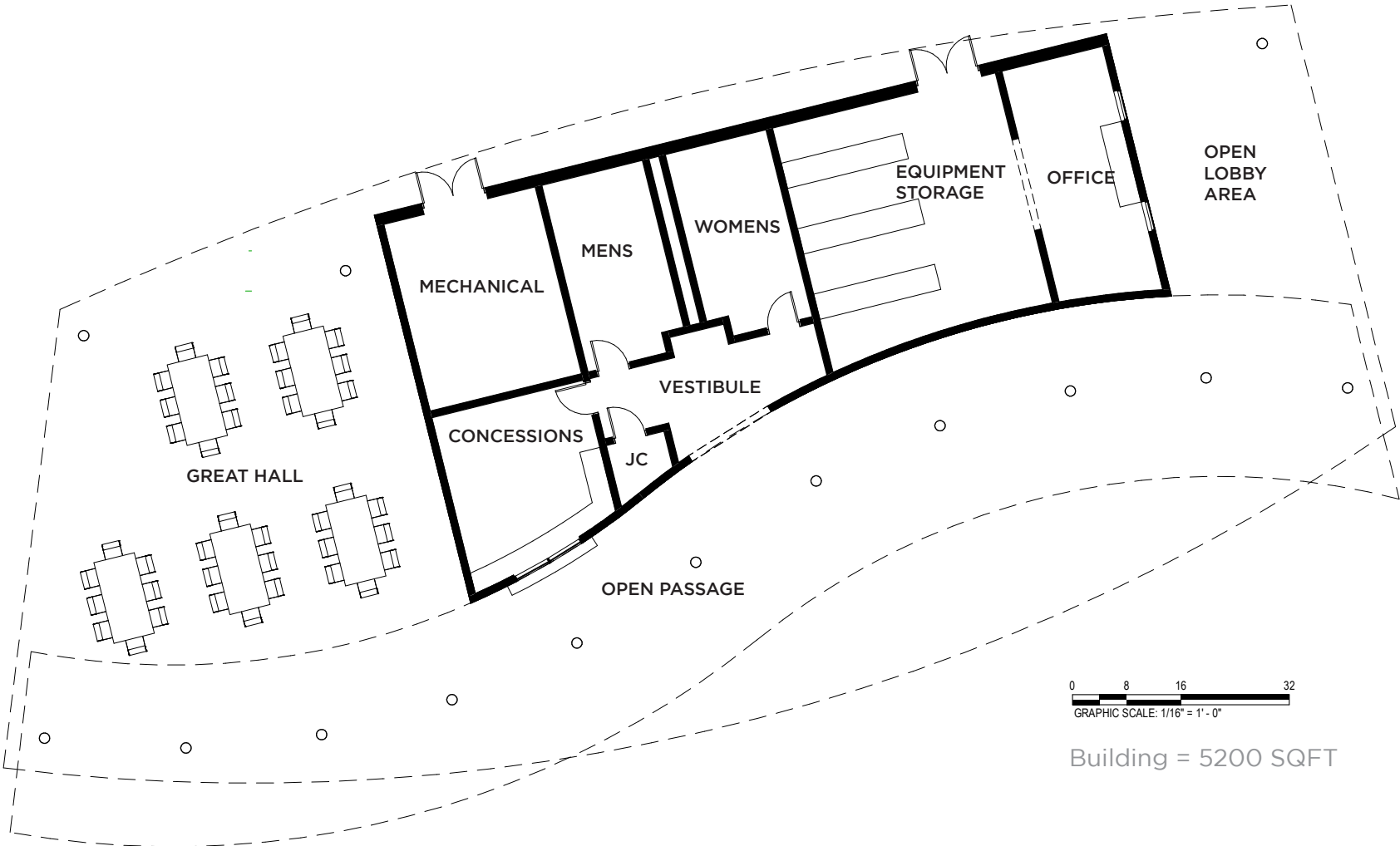
DESIGN Site Lighting Features

The diagram is a site plan for the Civic Pavilion, showing a central ice rink, a parking lot, and surrounding walkways. Key features include:

- TOWN CENTER DRIVE**: Located at the top of the site.
- CIVIC CENTER DRIVE**: Located on the left side of the site.
- SMALLER SCALE BOLLARD LIGHTING ALONG PATHS**: Indicated by a callout pointing to a circular inset image showing two tall, slender bollards on a path.
- BOLLARDS / SEATING LIGHT MONUMENT**: Indicated by a callout pointing to a circular inset image showing a black, box-like structure with a glowing top and base.
- PERIMETER LIGHTING AT RINK EDGE**: Indicated by a callout pointing to a blue hatched rectangular area along the rink's edge.
- OVERHEAD LIGHT EXPERIENCE**: Indicated by a callout pointing to a circular inset image showing people under a canopy of colorful, star-like lights.
- DESIGN CONCEPT \ \ SITE**: A vertical label on the right side of the diagram, accompanied by a tall, slender light pole with blue accents.



DESIGN Schematic Floor Plan



DESIGN CONCEPT \ PAVILION

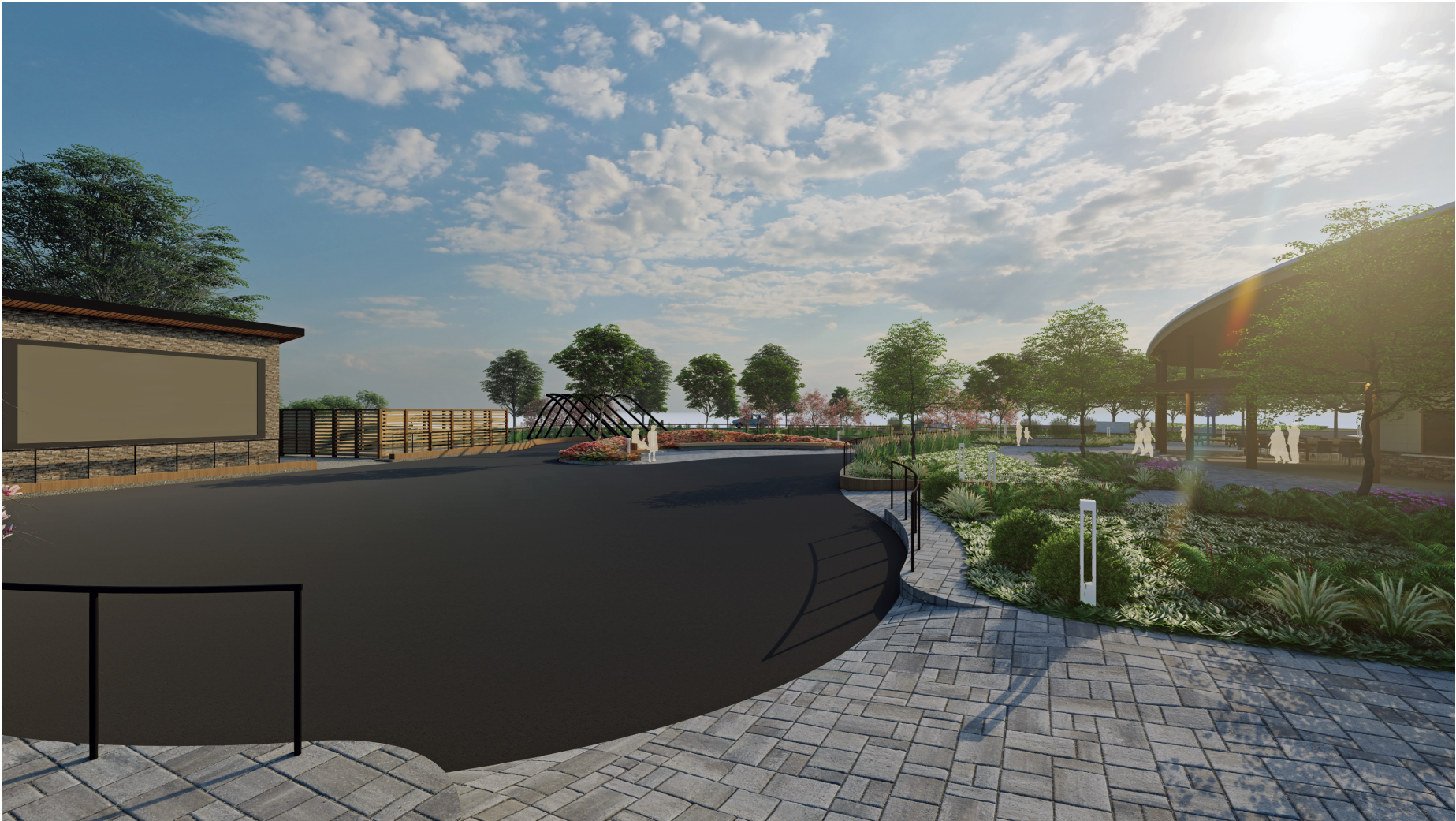


Concept Renderings



DESIGN CONCEPT \ \ RENDERINGS

Concept Renderings



Concept Renderings



DESIGN CONCEPT \ \ RENDERINGS

Concept Renderings



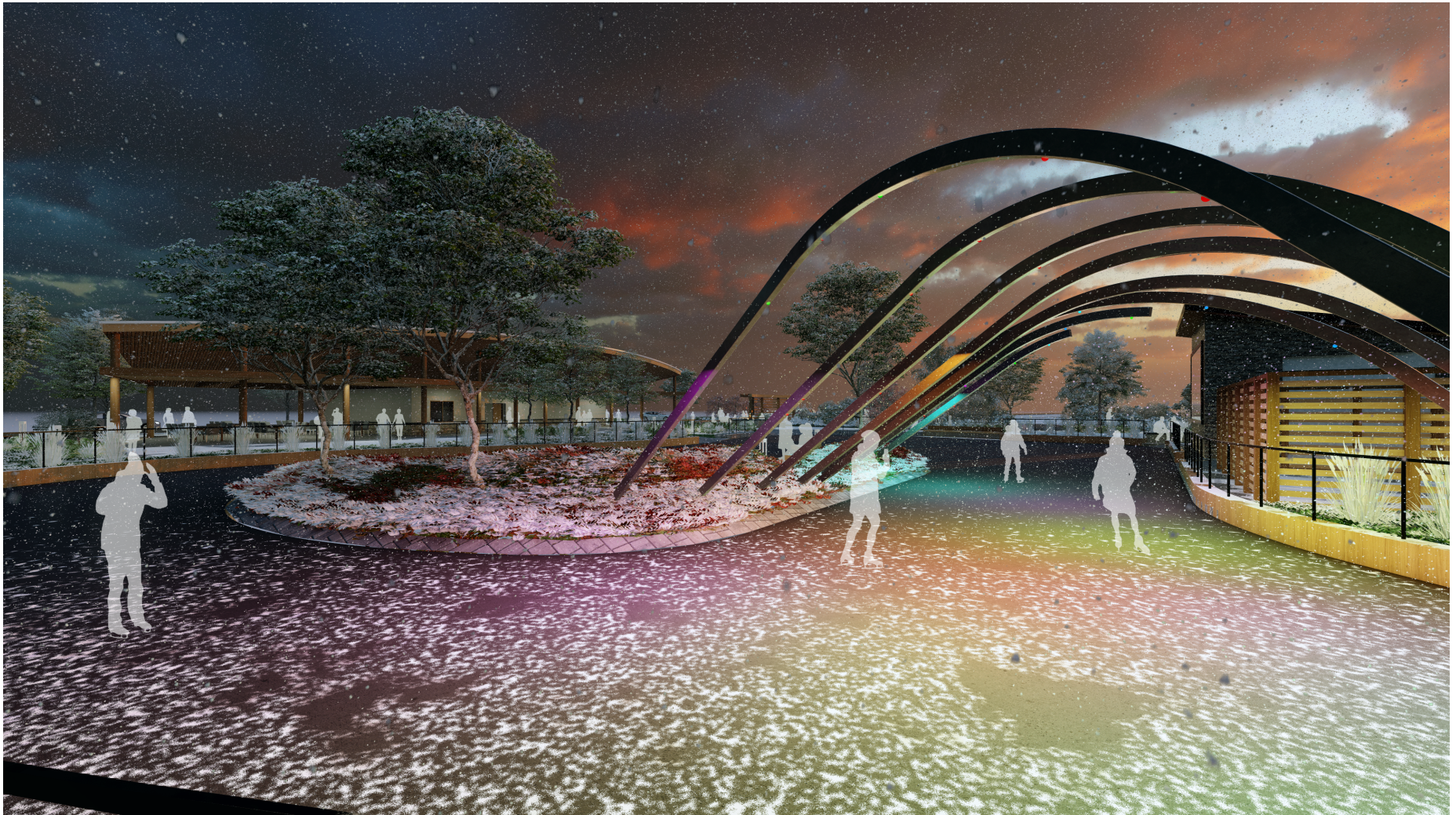
DESIGN CONCEPT \ \ RENDERINGS

Concept Renderings

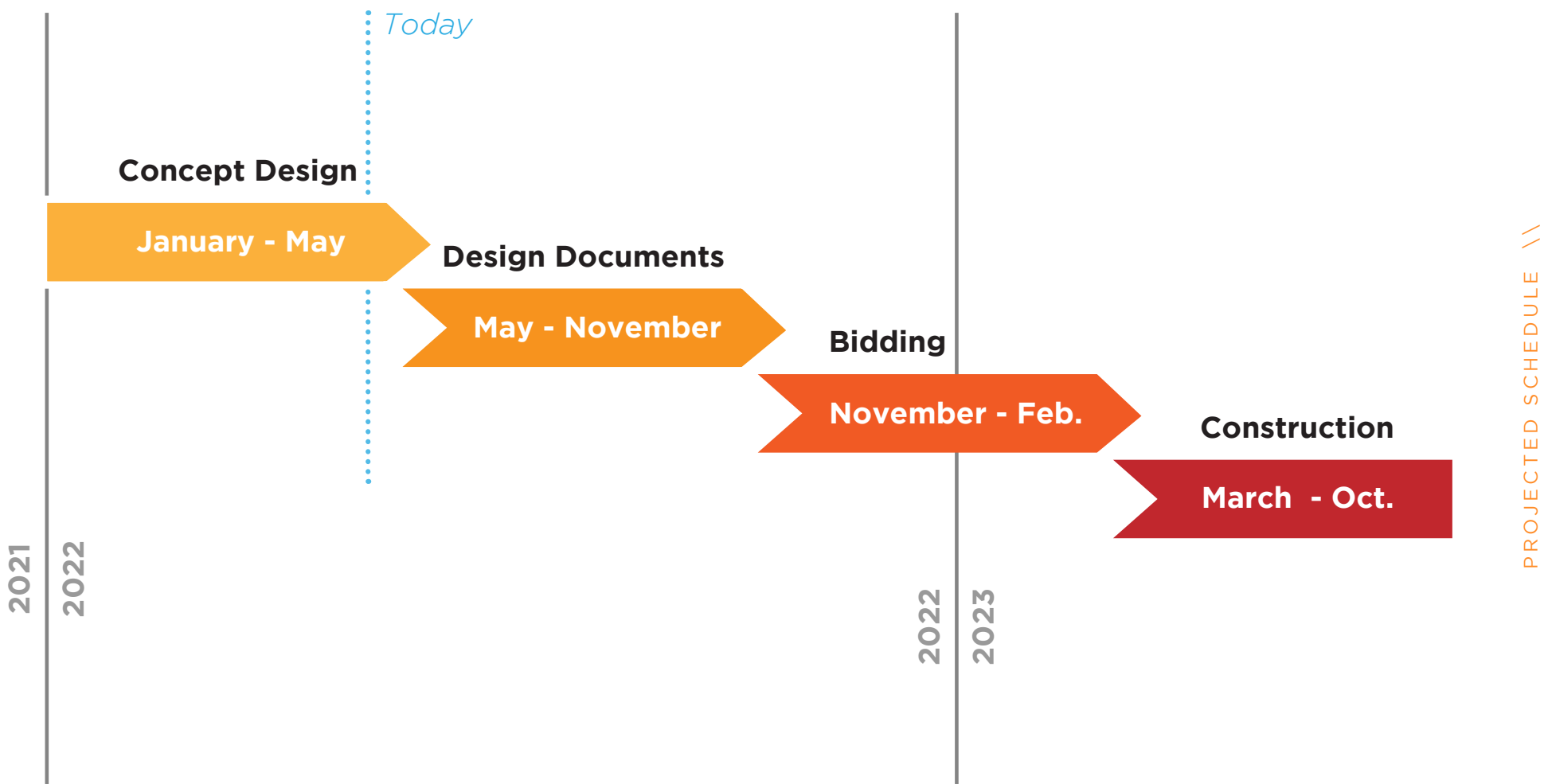


DESIGN CONCEPT \ \ RENDERINGS

Concept Renderings



DESIGN CONCEPT \\ RENDERINGS



7. PRELIMINARY SITE PLAN APPROVAL (File Number SP2019-0041) – Proposed Lange View Estates, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District

DATE: May 19, 2022

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PRELIMINARY SITE PLAN APPROVAL (File Number SP2019-0041) – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District.

The petitioner 4080 Troy LLC submitted the above referenced Preliminary Site Plan application for the 8-unit Lange View Estates townhome project. The units are proposed to be in 2 buildings and are 3 stories in height.

The property is currently zoned NN (Neighborhood Node “H”) District. Townhomes are permitted by right in the NN district. The Planning Commission is responsible for granting Preliminary Site Plan approval for this item.

The Planning Commission reviewed this project on February 23, 2021. The item was postponed by the Planning Commission (minutes attached).

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Minutes from February 23, 2021 Planning Commission Regular meeting.
3. Report prepared by Carlisle/Wortman Associates, Inc.
4. Site Plan

G:\SITE PLANS\SP JPLN2019-0041 LANGE VIEW\PC Memo 2022 05 24.docx

PROPOSED RESOLUTION

PRELIMINARY SITE PLAN APPROVAL (File Number SP2019-0041) – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District.

Resolution # PC-2021-05-

Moved by:

Seconded by:

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Lange View Estates, 8 units, located on the Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Zoned NN (Neighborhood Node “H”) District, be granted, subject to applicant the following:

1. Record shared parking agreement.
2. Either obtain parking waiver from Planning Commission, remove additional parking, or landbank parking.
3. Provide trash enclosure details in accordance with section 13.03B.
4. Provide three additional parking lot trees.
5. Relocate parking lot light in middle of parking lot.

_____) or

(denied, for the following reasons: _____) or

(postponed, for the following reasons: _____)

Yes:

No:

MOTION CARRIED/FAILED



595 0 297 595 Feet



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



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PRELIMINARY SITE CONDOMINIUM REVIEW

6. **PRELIMINARY SITE PLAN APPROVAL (File Number SP2019-0041)** – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District

Mr. Carlisle reviewed the Preliminary Site Plan application. He addressed the existing one-story office building on site, deficiencies in parking and landscaping, concerns of the Engineering and Fire Departments, missing details on the photometric plan and building materials.

Mr. Carlisle recommended to postpone action on the application to allow the applicant to address concerns identified in his report dated February 12, 2021. He said of significant importance are the concerns of the Engineering and Fire Departments and the transition of the project to neighboring residential in terms of building height.

Discussion among members and administration:

- Parcels under consideration; one whole parcel or three individual parcels.
- Ownership of parcels.
- Existing office building on site.
- Shared access, circulation.
- Intent of placing item on agenda with number of outstanding site plan concerns.

Present were property owner and commercial developer Vince Pangle and residential developer Gary Abitheira, who have formed a partnership in the proposed development.

Mr. Pangle addressed the historical significance of the site, renovation of the existing building and intent to develop the parcels in phases. Mr. Pangle said as a commercial developer and resident of Troy he would like to retain and integrate the historical significance of the site into the neighborhood. He addressed the site improvements he has undertaken and office and retail uses on site. Mr. Pangle said he is the owner of the parcel to the south and to date has no plan for its development. He indicated he is waiting for the right opportunity to develop the southern parcel as a third phase.

Mr. Abitheira addressed the potential of lowering the height of the townhomes from west to east.

There was discussion on:

- Historical significance of site.
- Concerns with height and massing of townhomes in relation to one-story office building and ranch-style homes in area.

- Transition of townhomes to residential neighborhood; applicant encouraged to “re-think” transitional element.
- Future development of southern parcel.
- Existing uses of office and retail on site.
- Phases of project development.
- Road improvements in relation to County jurisdiction.
- Elevations; elements of design from Leetonia and Livernois perspective.
- Applicant encouraged to provide three-dimensional computer models of project in context of existing surroundings.
- Setbacks of various buildings.
- Inquiry into combining the three parcels.

Mr. Pangle assured the Board that the concerns identified by the Planning Consultant could be addressed. He indicated though that the site improvements noted by the Engineering Department could be a challenge.

Resolution # PC-2021-02-016

Moved by: Lambert

Support by: Faison

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Lange View Estates, 8 units, located on the Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Zoned NN (Neighborhood Node “H”) District, be postponed, for the following reason:

1. Provide the applicant an opportunity to address issues identified in the Planning Consultant report and by the members of the Planning Commission.

Yes: All present (9)

MOTION CARRIED



Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: November 22, 2021
May 17, 2022

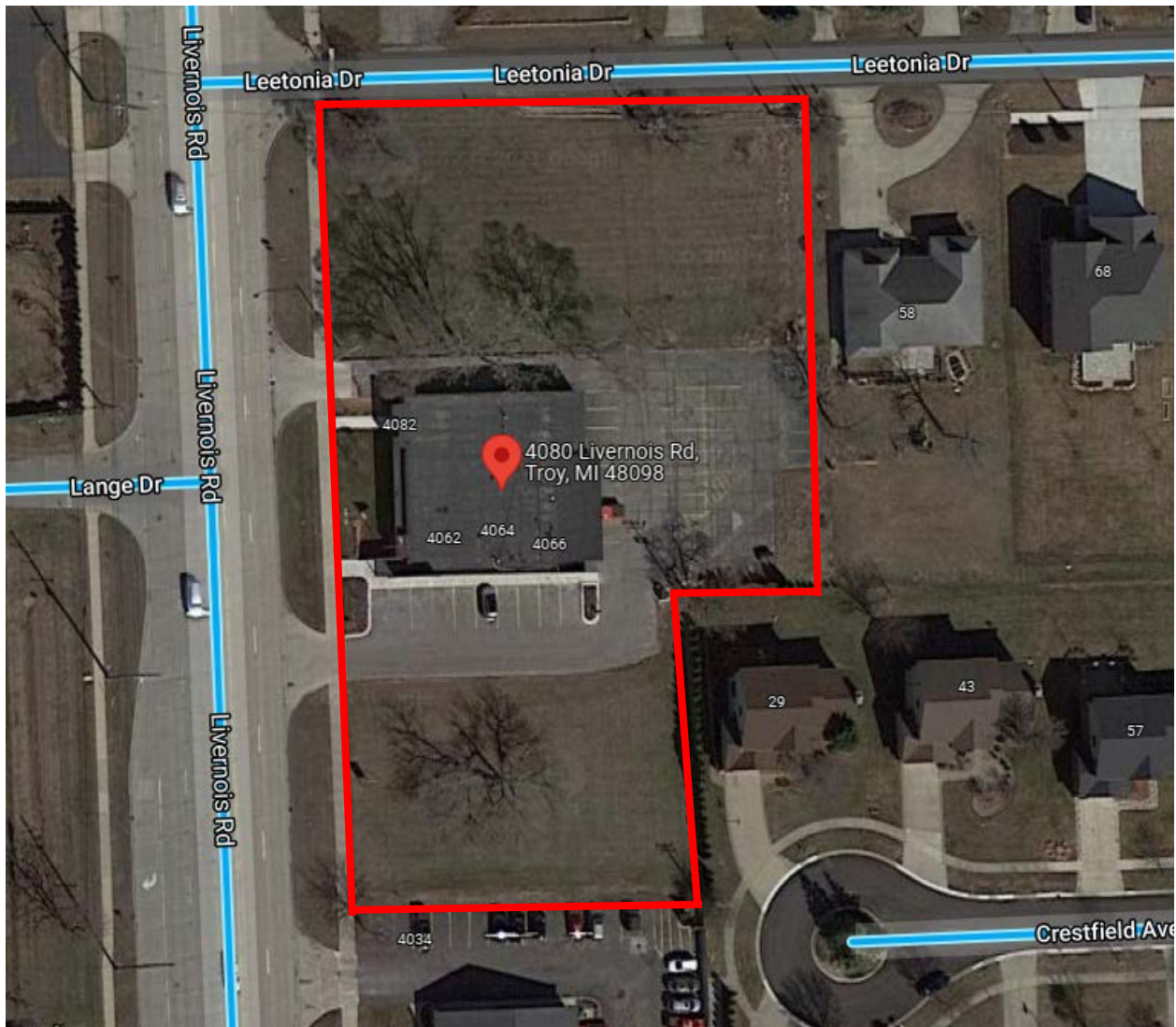
Site Plan Review For City of Troy, Michigan

Applicant:	Vince Pangle
Project Name:	Lange View Townhomes
Plan Date:	April 4, 2022
Location:	4080 Livernois Road, Troy, Michigan
Zoning:	NN, Neighborhood Node
Action Requested:	Updated Site Plan Approval
Required Information:	Revised Site Plan

PROJECT AND SITE DESCRIPTION

The proposed development is located on the east side of Livernois Road, just north of Wattles Road. The approximate 1.62-acre parcel of land has an existing one (1) story 7,175 square-foot commercial building; recently improved by new façade. The applicant proposes to incorporate eight (8) townhomes that front on Leetonia onto the site with the existing improved office building, with shared parking and cross-access. There is a third parcel to the south that is undeveloped, with no immediate plans for development.

All vehicular access to the site is via Livernois Road. The applicant shows two (2) access driveways onto Livernois Road. The property is zoned Neighborhood Node (NN) and multiple family residential is a permitted use.



Proposed Uses of Subject Parcel:

Eight (8) townhome units and an office building.

Current Use of Subject Property:

The subject property is currently a one (1) story office building.

Current Zoning:

The property is currently zoned NN, Neighborhood Node District.

Surrounding Property Details:

Direction	Zoning	Use
North	R1-B, Single Family	Single Family Residential
South	NN, Neighborhood Node	Dental Office
East	R1-B, Single Family	Single Family Residential

West	NN, Neighborhood Node / R1-B, Single Family	Church / Liquor Store / Single Family Residential
-------------	--	--

NATURAL RESOURCES

Topography: A topographic survey has been provided on page C4, shows site has slightly higher elevation on west and slowly decreases eastward toward property line.

Wetlands: No wetlands on site.

Woodlands: Some of the existing trees on-site will be removed for the new townhome developments and subsequent parking. A landscape Inventory has been provided on page C5.0. No mitigation is required.

Items to be Addressed: None.

BUILDING LOCATION AND SITE ARRANGEMENT

Access to the site will be via dual driveways on Livernois Road. The existing office building onsite will remain and the eight (8) residential units are being constructed to the north and fronting Leetonia. All residential buildings are three (3) stories.

The site is also adjacent to a dental office zoned Neighborhood Node to the south, a church zoned Neighborhood Node and One-Family residential (R-1B) properties to the west; and more One-Family Residential (R-1B) properties to the north and east.

Items to be Addressed: None.

AREA, WIDTH, HEIGHT, SETBACKS

Table 5.03.B.3, Building Form C, Standards Applicable to All Districts of the Zoning Ordinance establishes the dimensional requirements for the NN, Neighborhood Node District. The requirements of Building form C and the proposed dimensions are shown in the following table.

	Required	Provided	Compliance
Front (Livernois)	10 feet. 75% of the building façade must meet the required building line, while up to 25% of the façade can be set back to allow for architectural consideration.	11 Feet	Complies
Front (Leetonia)	10 feet. 75% of the building façade must meet the required building line, while up to 25% of the façade can be set back to allow for architectural consideration.	20 Feet	Complies
Side	N/A, building may be placed up to property line	N/A	Complies
Rear	30-foot minimum setback	31.4 Feet	Complies
Building Height	Maximum 4 stories, 55 feet, Minimum 2 stories	3 stories, 34 Feet-10 inches (as noted on site plan)	Complies
Maximum Lot Coverage	30%	20.4%	Complies
Minimum Open Space	20%	43.9%	Complies
Parking Location	Cannot be located in front yard	Parking lots not in front yard	Complies

The maximum height in the adjacent residential neighborhood is 30 feet. Leetonia Drive comprised of mainly ranch homes. The existing office building located on the same site is one story. Applicant discussed lowering height of building from west to east for transition from Neighborhood Node zoning during February 23, 2021 Troy City Planning Commission Meeting however, the plan submitted maintains the 3-story height.

A building height of 2 to 2.5 stories would be more appropriate transition.

Items to be Addressed: Consider height of 2 to 2.5 stories as a more appropriate transition.

PARKING, LOADING

Section 13.06.G of the Zoning Ordinance requires:

	Required	Provided
Residential (General): 2 spaces per unit	8 units = 16 spaces	43 spaces and 16 garage spaces = 59 Spaces.
Office (1 space for each 300 square feet of floor area)	7,175 gross square feet = 24 spaces	
TOTAL	40 spaces	
Barrier Free	2	1
Bicycle Parking	2	0
Loading	0	0
Total	40 Spaces	62 Spaces

The site, particularly the office site is overparked. Parking that exceeds 20% of the required minimum requires Planning Commission approval. The required parking (40 spaces) plus a 20% excess is a total of 48 spaces. The applicant is seeking approval for 59 spaces. A shared parking agreement will need to be recorded.

Items to be Addressed: *Either obtain parking waiver from Planning Commission, remove additional parking, or landbank parking*

SITE ACCESS AND CIRCULATION

Vehicular access to the site is via the two driveways off Livernois Road. Site plan provides a 26' wide fire access drive-aisle. The applicant has provided the required turning fire engine template.

Items to be Addressed: *None*

LANDSCAPING

A landscaping plan has been provided on page C5.0. The following table discusses the development's compliance with the landscape requirements set forth in Section 13.02.

	Required:	Provided:	Compliance:
Livernois Greenbelt (1 tree per 30 lineal feet)	245 feet = 9 trees	9 trees	Complies
Leetonia Greenbelt (1 tree per 30 lineal feet)	255 feet = 9 trees	9 trees	Complies
Screening Between Uses (Residential to the East) Narrow Evergreen every 3 lineal feet	315 lineal feet = 105 trees	105 trees	Complies

General Site Landscaping (20% of the site area)	41,820 sq. ft x 0.20 = 8,364 square feet is 20%	14,197 square feet is 33.9%	Complies
Parking Lot Landscaping (1 tree per 8 spaces)	62 spaces = 8 trees	5 trees	Does not comply

Add three additional parking lot trees. Applicant shows trash enclosure but does not indicate screening.

Items to be Addressed: 1). Provide trash enclosure details in accordance with section 13.03B; and 2). Provide three additional parking lot trees

LIGHTING

A photometric plan has been provided on page E1.0. A total of four (4) pole mounted light fixtures are proposed. There are no building mounted lights indicated. Pole-mounted light fixtures are noted as having a height of 20'. The fixtures and photometrics meet all ordinance requirements; however, we note that one of parking lot lights is located in the middle of the parking lot without any protection.

Items to be Addressed: Relocate parking lot light in middle of parking lot.

FLOOR PLAN AND ELEVATIONS

Floor plans and elevations have been provided on pages A1, A2, A3, and A4. The elevations show architectural details, variations in material and pattern. Elevation maximum details were provided on page A3 however, there was no indication of the elevation transition from west to east that was discussed at the February 23, 2021 City of Troy Planning Commission Meeting. The photo below shows the area of the site of the proposed townhome in relation to adjacent buildings.



Items to be Addressed: Provide elevation details regarding transition.

DESIGN STANDARDS and SITE PLAN REVIEW STANDARDS

The Neighborhood Node design standards provide the Planning Commission with direction when reviewing the proposed site plane and design features of this development.

Section 5.06.E Design Standards

1. Building Orientation and Entrance
2. Ground Story Activation
3. Transitional Features
4. Site Access, Parking & Loading

*Please see Section 5.06E for standard details

Section 8.06 Site Plan Review Standards

1. Development shall ensure compatibility to existing commercial districts and provide a transition between land uses.
2. Development shall incorporate the recognized best architectural building practices.
3. Enhance the character, environment, and safety for pedestrians and motorists.

*Please see Section 8.06 for standard details

Section 5.06.E.3 Transitional Features outlines transitional standards for the Planning Commission to consider:

3. Transitional Features

- a) Transitional features are architectural elements, sit features, or alterations to building massing that are used to provide a transition between higher-intensity uses and low- or moderate-density residential areas. These features assist in mitigating potential conflicts between those uses. Transitional features are intended to be used in combination with landscape buffers or large setbacks.
- b) Intensity. A continuum of use intensity, where moderate intensity uses are sited between high-intensity uses and low-intensity uses, shall be developed for multi-building developments. An example would be an office use between commercial and residential uses.
- c) Height and mass. Building height and mass in the form of building step-backs, recess lines or other techniques shall be graduated so that structures with higher-intensity uses are comparable in scale with adjacent structures of lower intensity uses.
- d) Orientation. Primary building façades shall be placed away from residential use.
- e) Architectural features. Similarly sized and patterned architectural features such as windows, doors, arcades, pilasters, cornices, wall offsets, building materials, and other building articulations included on the lower-intensity use shall be incorporated in the transitional features.

RECOMMENDATIONS

Overall, we think the townhome development could be appropriate use of this site; however, we recommend that the Planning Commission discuss transitional features and height. Particularly impact for the homes on Leetonia.

Based on that discussion, if Planning Commission approves the preliminary site plan, we recommend the following conditions:

1. *Record shared parking agreement.*
2. *Either obtain parking waiver from Planning Commission, remove additional parking, or landbank parking.*
3. *Provide trash enclosure details in accordance with section 13.03B.*
4. *Provide three additional parking lot trees.*
5. *Relocate parking lot light in middle of parking lot.*


CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

C1.0 COVER SHEET
SV1 TOPOGRAPHIC SURVEY
C2.0 REMOVAL PLAN
C2.1 TREE SURVEY
C3.0 OVERALL SITE PLAN
C4.0 GRADING PLAN
C4.1 UTILITY PLAN
C4.2 STORMWATER DETAILS
C4.3 STORMWATER DETAILS 2
C5.0 LANDSCAPING PLAN
C6.0 SITE DETAILS
E1.0 PHOTOMETRIC PLAN
A1 FLOOR PLANS
A2 ELEVATIONS
A3 ELEVATIONS
A4 UNIT PLANS

OWNER

CIVIL ENGINEER

PHONE: (989) 513-4058



MONUMENT / SECTION CORNER	
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO. 26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATER MAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

B.M. #1 - ARROW ON FLANGE OF HYDRANT, COR OF
LEETONIA AVE & LIVERNOIS RD
ELEV. 687.33 NAVD 88

ZONED NN (NEIGHBORHOOD NODE)
 NODE H - LIVERNOIS & W. WATTLES INTERSECTION
 STREET TYPE NN:A(LIVERNOIS) AND TYPE NN:B (LEETONIA)
 SITE TYPE NN:B

CITY OF TROY, COMMUNITY NO. 260180
OAKLAND COUNTY, MICHIGAN
MAP NUMBER: 26125C0534F
EFFECTIVE DATE: 9/29/2006
FLOOD ZONE: X
AREA OF MINIMAL FLOOD HAZARD (PER FIRM)

TELEPHONE AT & T 54 N. MILL ST. P.O. BOX 32 PONTIAC, MI 48642	GAS AND ELECTRIC CONSUMERS ENERGY GAS INFORMATION MGMT 1030 FEATHERSTONE RD. PONTIAC, MI 48342
--	---

CITY OF TROY ZONING & PLANNING 500 W. BIG BEAVER RD TROY, MICHIGAN 48084 (248) 524-3364	CITY OF TROY TROY DPW 4693 ROCHESTER RD TROY, MICHIGAN 48085 (248) 524-3392
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CITY OF TROY ZONING & PLANNING 500 W. BIG BEAVER RD TROY, MICHIGAN 48084 (248) 524-3364	CITY OF TROY TROY DPW 4693 ROCHESTER RD TROY, MICHIGAN 48085 (248) 524-3392
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SITE ADDRESS
4080 LIVERNOIS ROAD
TROY, MI 48098-4721

NN - NEIGHBORHOOD NODE

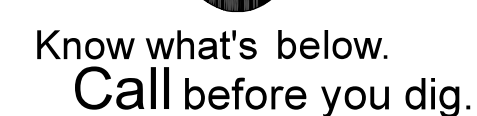
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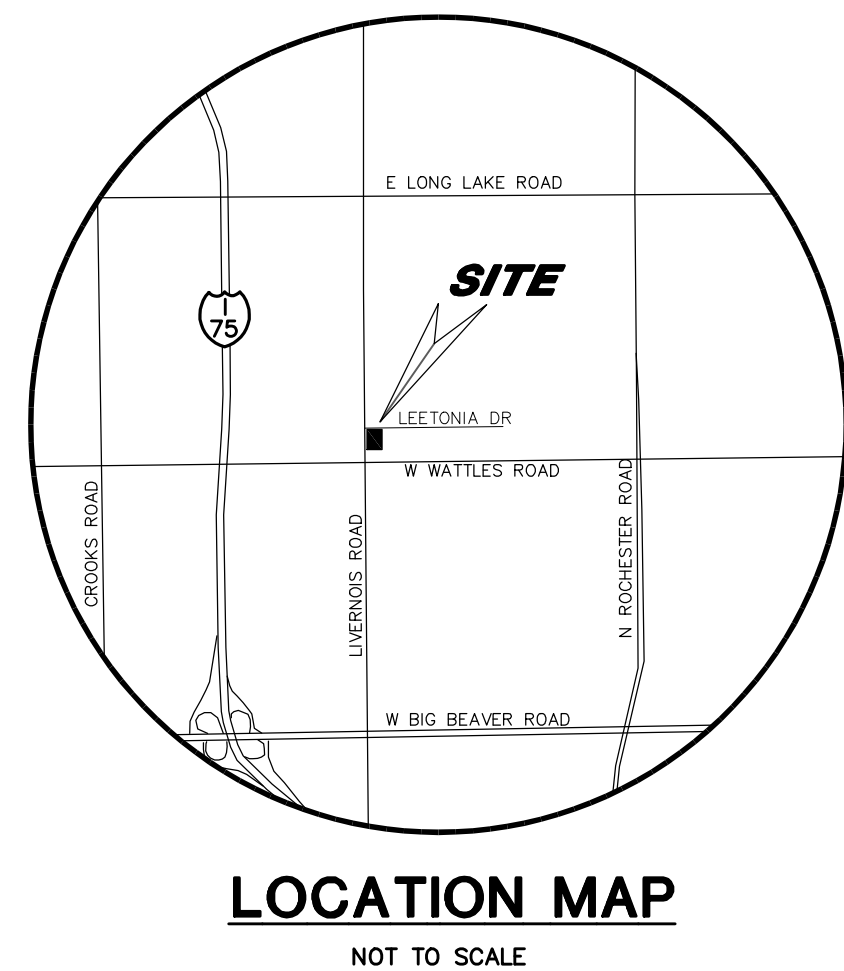
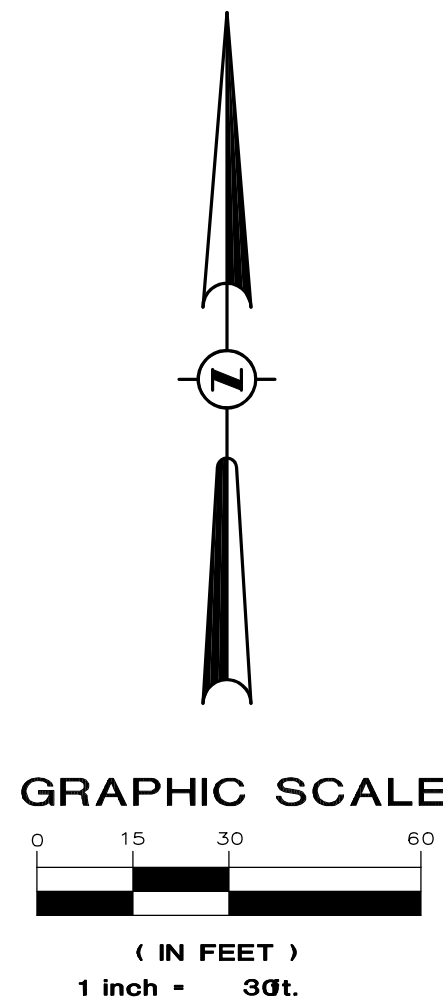
STRATEGIC PROPERTY SERVICES, LLC
ATTN: VINCE PANGLE
4080 LIVERNOIS ROAD
TROY, MI 48098

































D&M SITE, INC.
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(989) 752-6500

REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, P.E.
2807 Highbrook Drive
Midland, MI 48642
(989) 513-4058

THE UTILITY LOCATIONS AS HEREON SHOWN ARE BASED ON FIELD OBSERVATIONS AND A CAREFUL REVIEW OF MUNICIPAL AND UTILITY RECORDS. HOWEVER, IT IS NOT POSSIBLE TO DETERMINE THE PRECISE SIZE, LOCATION, DEPTH, PRESSURE, MATERIAL, CHARACTERISTICS, OR CONDITION OF ANY UTILITIES, TANKS OR SEPTIC LINES WITHOUT EXCAVATION. THEREFORE, WE CANNOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SHOWN UTILITY INFORMATION. THE CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND UTILITIES INFORMATION AND MAKE EVERY EFFORT TO PROTECT AND/OR RELOCATE THEM AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/SURVEYOR AS SOON AS POSSIBLE IN THE EVENT A DISCREPANCY OCCURS.





LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRICAL LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

UTILITY CONTACTS	
TELEPHONE AT & T 54 N. MILL ST. P.O. BOX 32 PONTIAC, MI 48642	GAS AND ELECTRIC CONSUMERS ENERGY GAS INFORMATION MGMT 1030 FEATHERSTONE RD. PONTIAC, MI 48342
ZONING CITY OF TROY ZONING & PLANNING 500 W. BIG BEAVER RD TROY, MICHIGAN 48064 (248) 524-3364	WATER/SEWER CITY OF TROY TROY DPW 4693 ROCHESTER RD TROY, MICHIGAN 48065 (248) 524-3392

UTILITY NOTE

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ZONING INFORMATION
ZONED NN (NEIGHBORHOOD NODE) NODE H — LIVERNOIS & W. WATTLES INTERSECTION STREET TYPE NN: A(LIVERNOIS) AND TYPE NN: B (LEETONIA) SITE TYPE NN: B

PROPRIETOR

STRATEGIC PROPERTY SERVICES, LLC
ATTN: VINCE PANGLE
5750 NEW KING STREET, STE 350
TROY, MI 48098

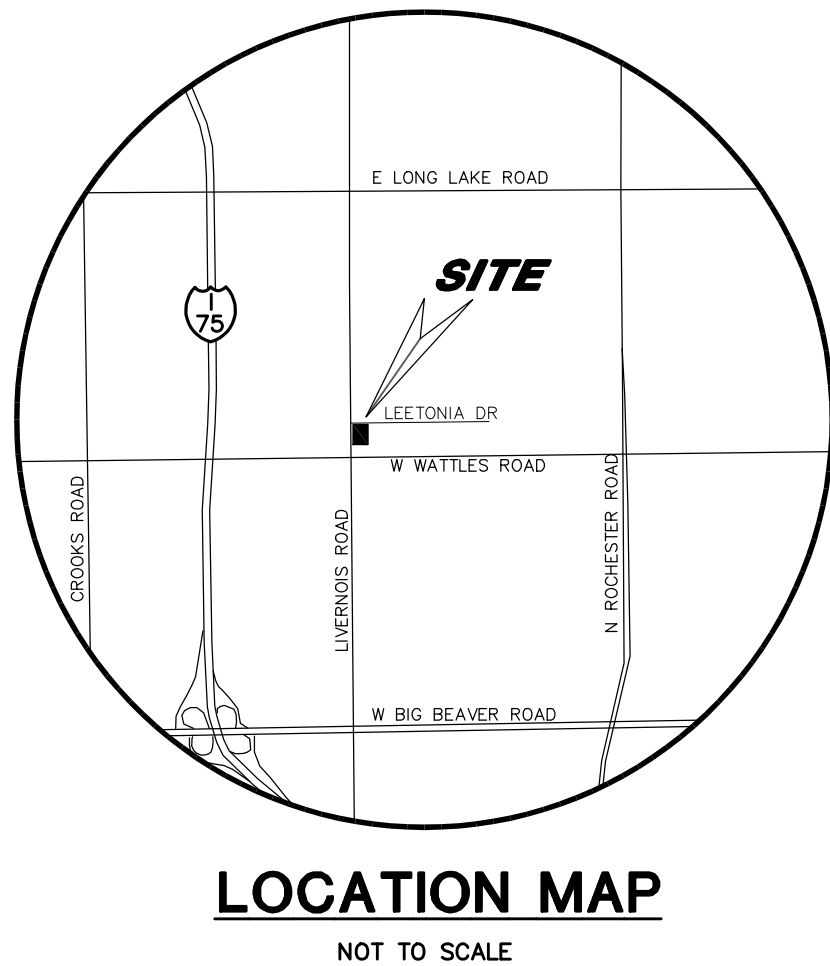
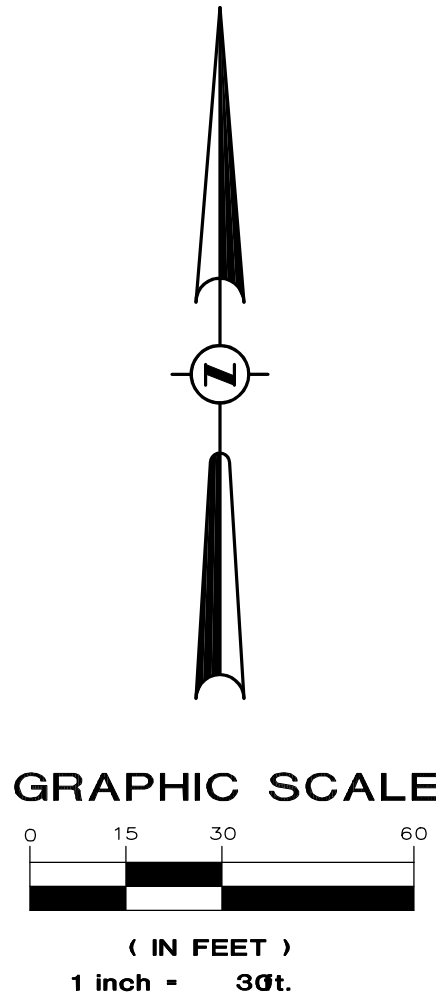
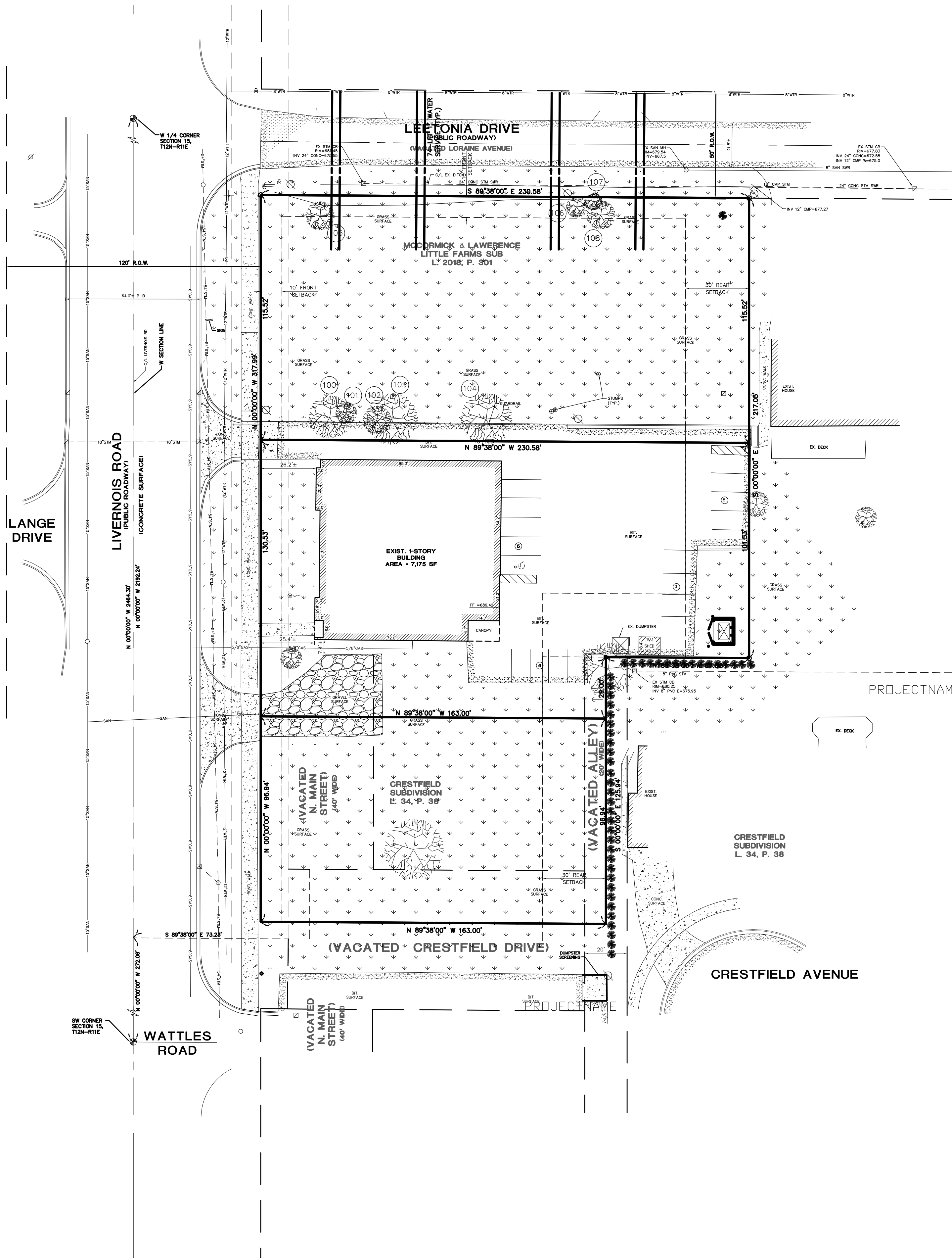
SURVEYOR

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ENGINEER

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	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

TAG	DBH	COMMON NAME	LATIN NAME	COND	CLASS	SAVE/REMOVE	ON-SITE
100	30"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
101	15"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
102	20"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
103	36"	COTTONWOOD	POPULUS DELTOIDES	POOR	INVASIVE	REMOVE	YES
104	24"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
105	24"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
106	15"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
107	12"	CHINESE ELM	ULMUS PARVIFOLIA	POOR	INVASIVE	REMOVE	YES
108	20"	BLACK WALNUT	JUGLANS NIGRA	POOR	WOODLAND	REMOVE	YES

TREE REPLACEMENT CALCULATIONS
PER CITY OF TROY ZONING ORDINANCE
NO TREES SAVED – DUE TO POOR CONDITION OR INVASIVE SPECIES.
NO TREE REPLACEMENT REQUIRED.

PROPRIETOR
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ENGINEER
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(989) 513-4058

PREPARED UNDER THE SUPERVISION OF:
PROJECT LOG
FILE # OVERALL
PROJ MGR:
DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE:
SHEET: 1 OF 1

REDRIDGE ENGINEERING, LLC
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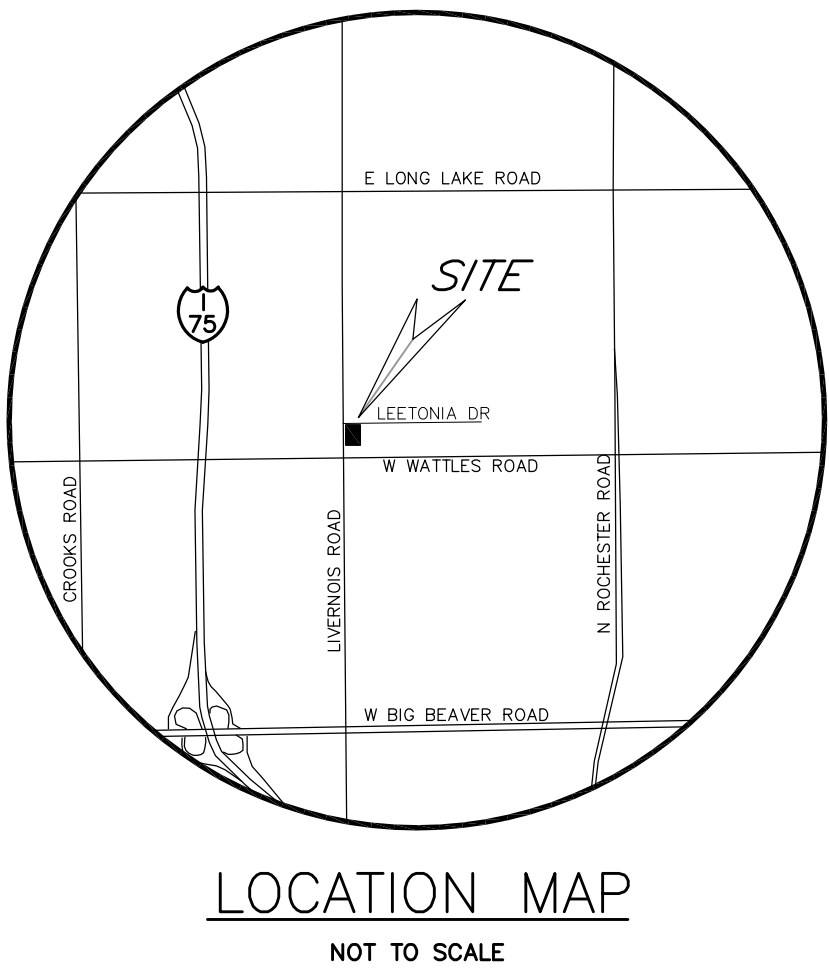
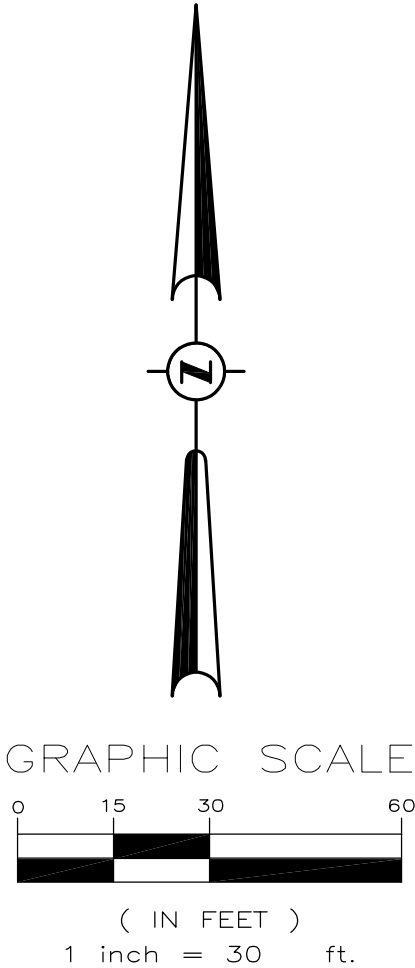
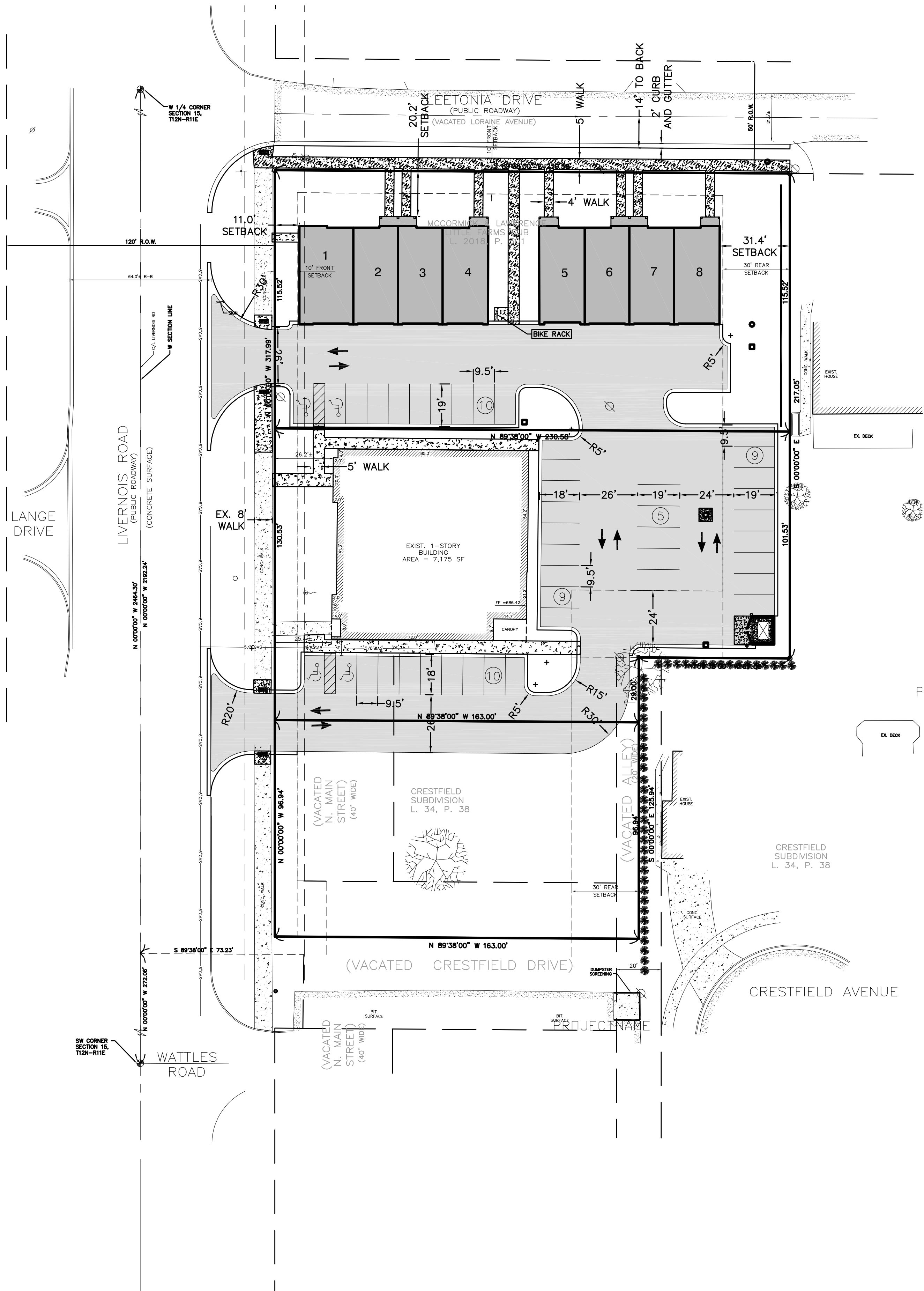
LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4088 LIVERNOIS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

TREE SURVEY

C2.1

180401

OVERALL SITE PLAN:
LANGE VIEW TOWNHOUSES



LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
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	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

BULK REGULATIONS

	REQUIRED: NEIGHBORHOOD NODE SITE TYPE NN-B BUILDING FORM C	PROVIDED
GROSS SITE AREA		1.62 ACRES
USABLE BUILDING AREA		1.22 ACRES
REQUIRED OPEN SPACE	MIN. 15%	31,002 SFT
LOT COVERAGE BY ALL BLDGS	MAX. 30%	14,375 SFT
BUILDING HEIGHT MAX.	55 FEET	39 FEET
PROPOSED SETBACKS		
FRONT (W.)	10'	11.0'
FRONT (N.)	10'	20.2'
REAR (E.)	30'	31.4'
SIDE (S)	0'	NA

* SETBACK TO EXISTING BUILDING (TO REMAIN)

STORMWATER DETENTION DATA

DRAINAGE AREA: 1.31 AC
DEVELOPED % IMPERV: 0.96 AC (73.2%)
ALLOWABLE RELEASE RATE: 0.2 CFS/AC = 0.26 CFS
25-YR DETENTION STORAGE REQD: 9,106 CFT
PROPOSED DETENTION: UG DETENTION ~9,200 CFT

PAVEMENT TYPE

STANDARD DUTY	
HEAVY DUTY	

PARKING

REQUIRED NUMBER OF PARKING SPACES:

	REQUIREMENT	BUILDING AREA	REQUIRED PARKING
OFFICE/PROF.	1 SPACE FOR EACH 300 SQ FT OF FLOOR AREA	7,175 GSFT	24 SPACES
SINGLE-FAMILY	2 SPACES PER UNIT	8 UNITS	16 SPACES
		TOTAL SPACES REQUIRED	40 SPACES
		TOTAL SPACES PROVIDED	43 SPACES

TOTAL HANDICAP SPACES = 2 VAN ACCESSIBLE + 2 STANDARD = 4 SPACES

PROPRIETOR

STRATEGIC PROPERTY SERVICES, LLC
ATTN: VINCE PANGLE
4080 LIVERNOIS
TROY, MI 48098

SURVEYOR

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(989) 752-6500

ENGINEER

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RICHARD FOSGITT, P.E.
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MIDLAND, MI 48642
(989) 513-4058

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG	FILE #	OVERALL	PROJ. MGR.	DESIGN BY:	DRAWN BY:	CHECKED BY:	SCALE:	SHEET:
PRELIMINARY LAYOUT FOR REVIEW	04-17-13	RF	RF	RF	RF	RF	1"=30'	1 OF 1
UPDATED SITE PLAN REVIEW	04-13-20						NONE	
PRELIMINARY LAYOUT FOR REVIEW	08-31-21							
UPDATED SITE PLAN REVIEW	04-04-22							

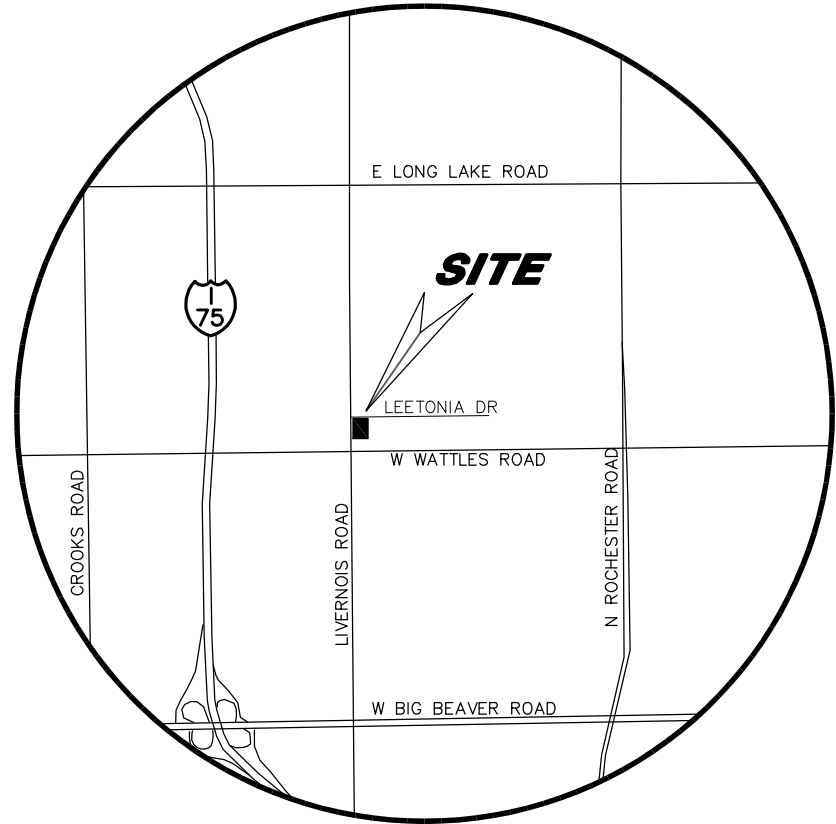
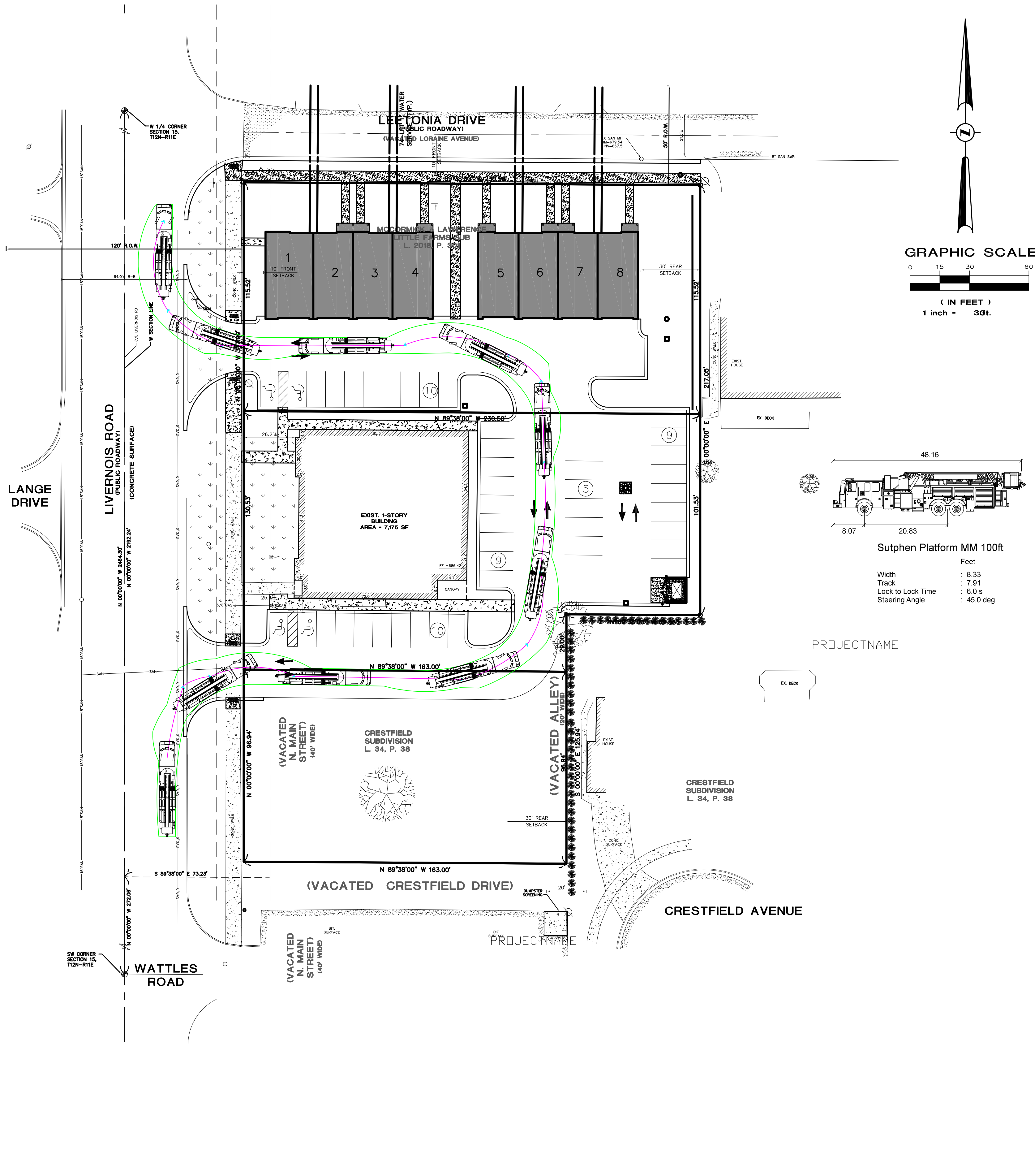
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STRATEGIC PROPERTY SERVICES, LLC
4080 LIVERNOIS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

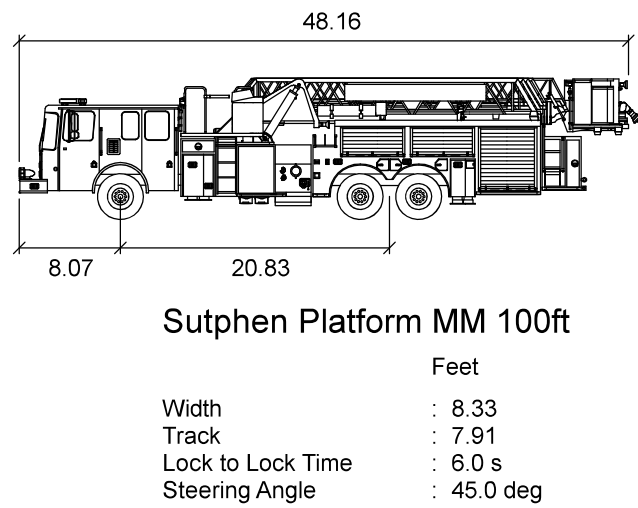
OVERALL SITE PLAN

C3.0
180401



LOCATION MAP
NOT TO SCALE

LEGEND	
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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC

4088 LIVERNOS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

TURNING PLAN

PREPARED UNDER THE
SUPERVISION OF:

PROJECT LOG

FILE # OVERALL

REDRIDGE ENGINEERING, LLC
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989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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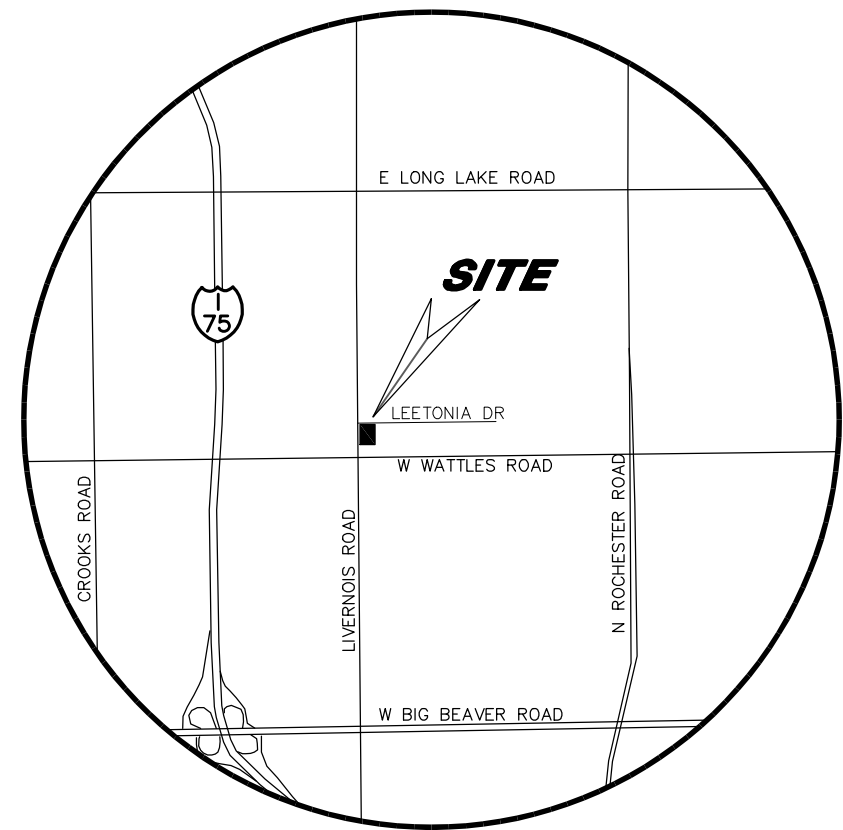
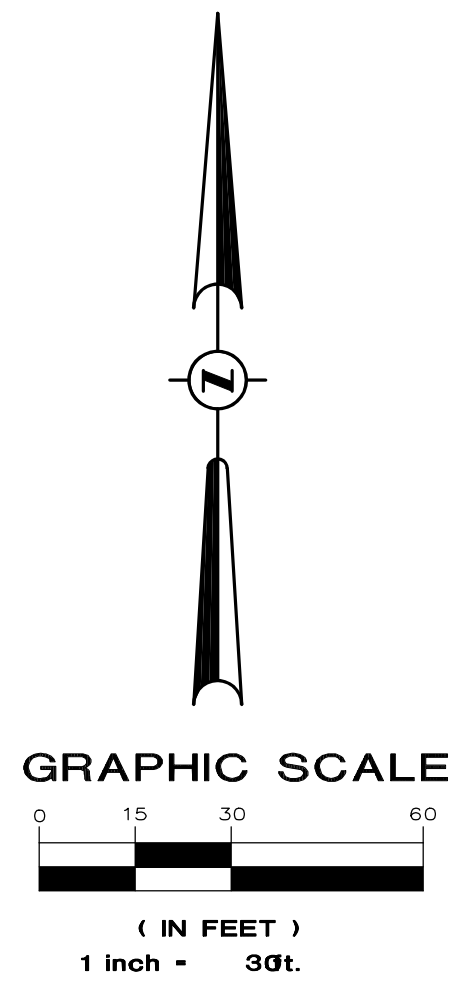
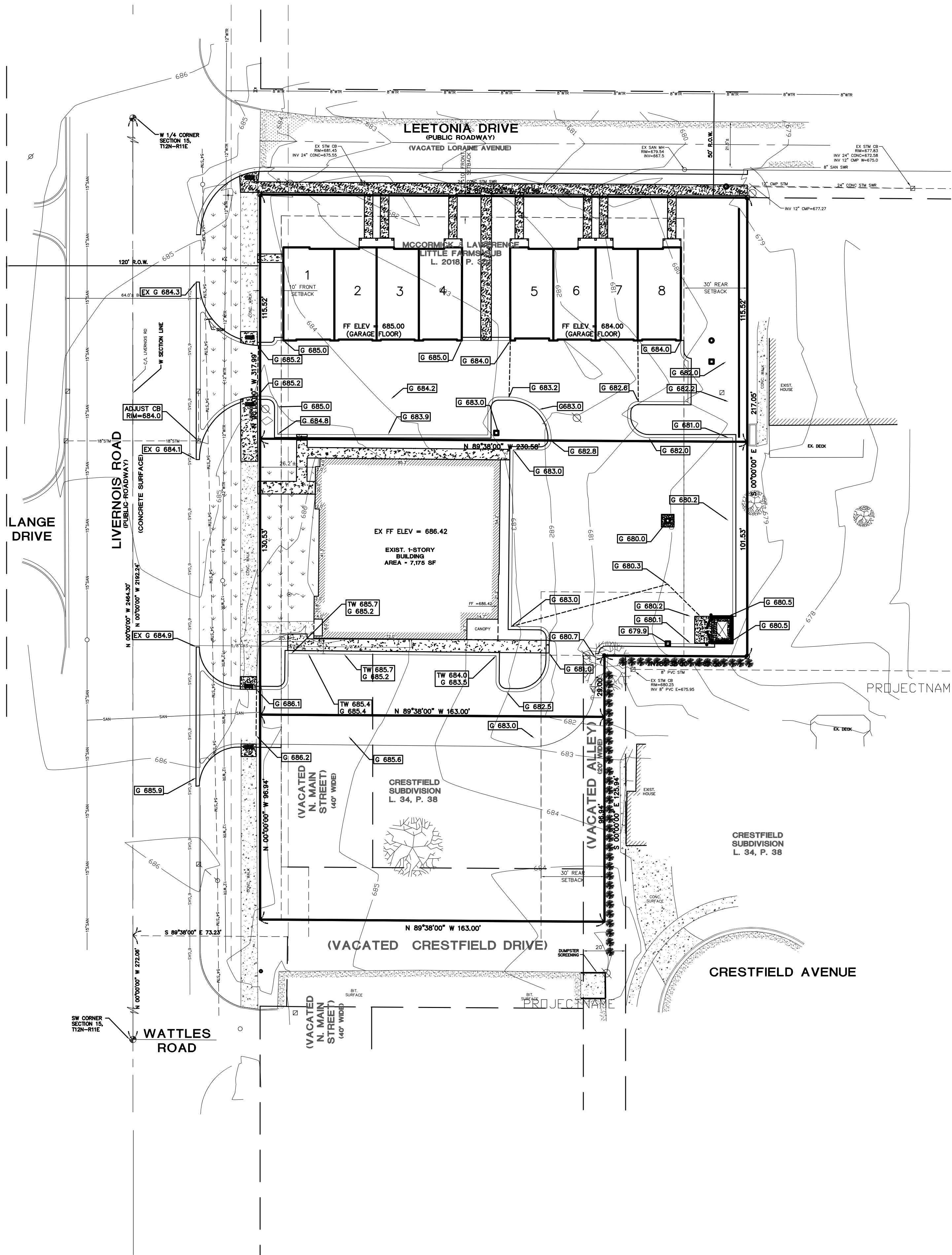
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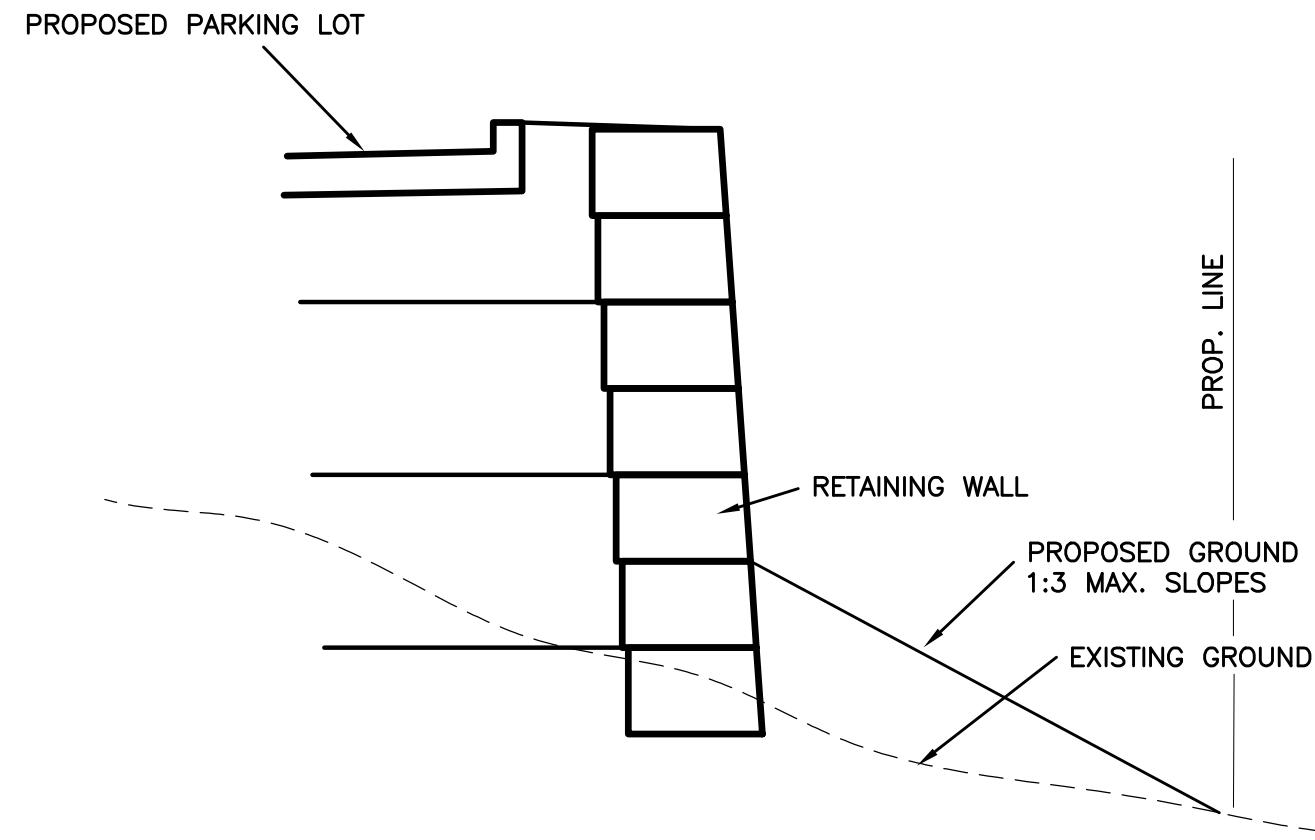
LOCATION MAP
NOT TO SCALE

LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

G XXX.X DENOTES PAVEMENT GRADE (EDGE OF METAL)
W XXX.X DENOTES SIDEWALK GRADE

SITE GRADING NOTES

- GRADING BASIS OF DESIGN:
PAVEMENT MIN. 1.0% SLOPE
CURB AND GUTTER MIN. 0.50% SLOPE
- CONTRACTOR TO PROVIDE SOIL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT ANY EROSION OR SEDIMENTATION. PROTECT ALL DRAINAGE STRUCTURES WITH SILT FENCE, SURFACE SEDIMENT SUMPS, OR OTHER APPROVED MEASURES.
- PROPOSED RETAINING WALL SHALL BE REDI-ROCK OR APPROVED EQUAL. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF RETAINING WALL FOR APPROVAL BY OWNER AND TOWNSHIP ENGINEER.



EAST RETAINING WALL SECTION

PROPRIETOR
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5750 NEW KING STREET, STE 350
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ENGINEER
REDRIDGE ENGINEERING, LLC
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PREPARED UNDER THE SUPERVISION OF:
PROJECT LOG
FILE # OVERALL
PROJ MGR:
DESIGN BY:
DRAWN BY:
CHECKED BY:
SCALE:
SHEET: 1 OF 1

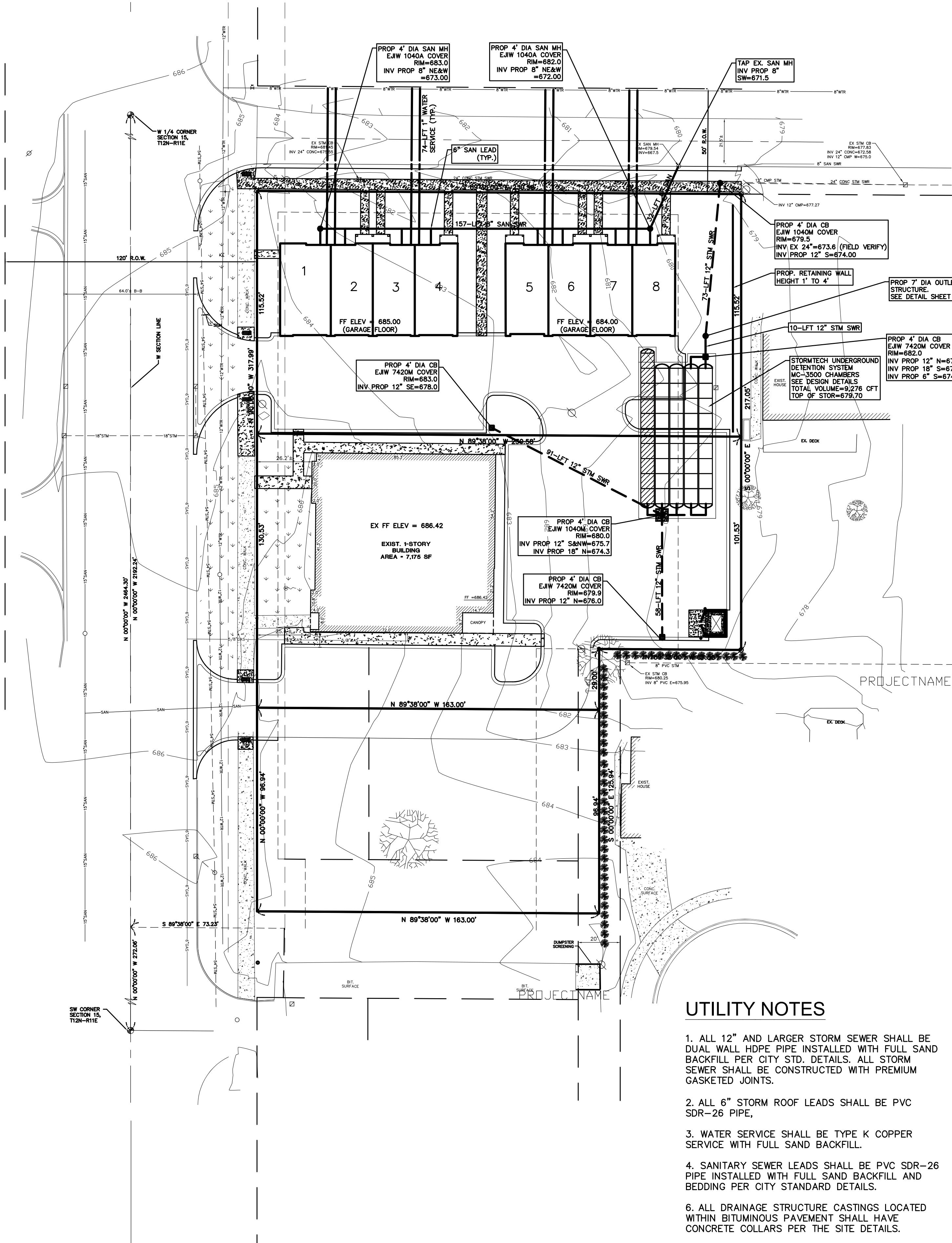
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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4088 LIVERNOIS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

GRADING PLAN

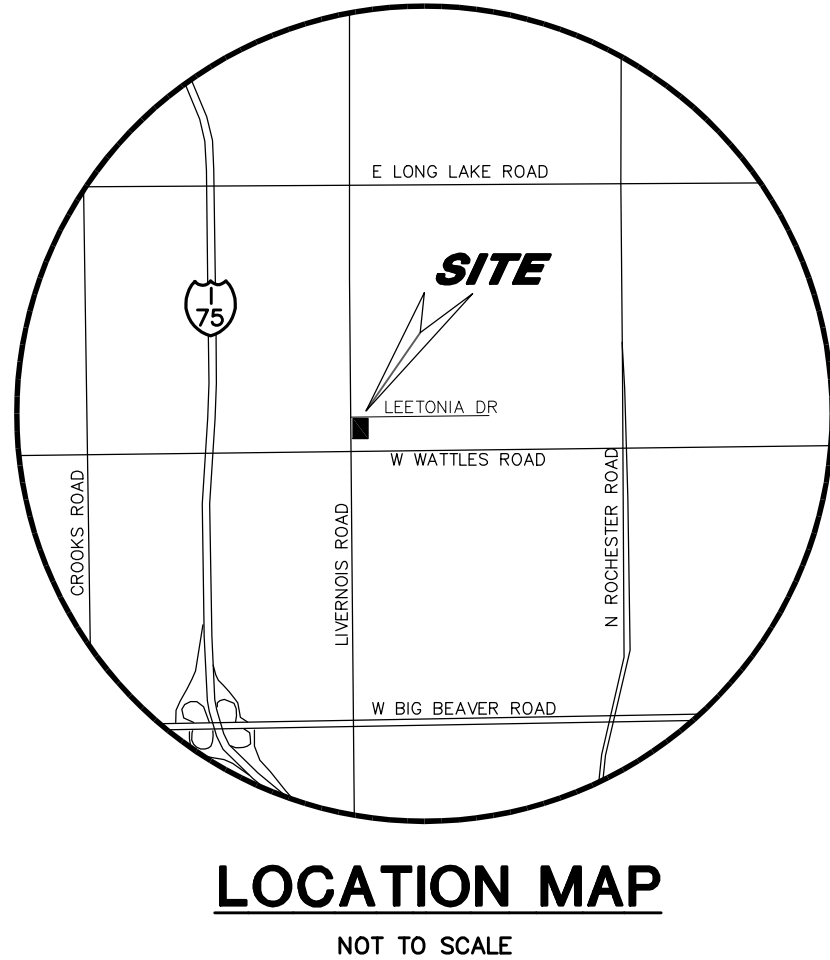
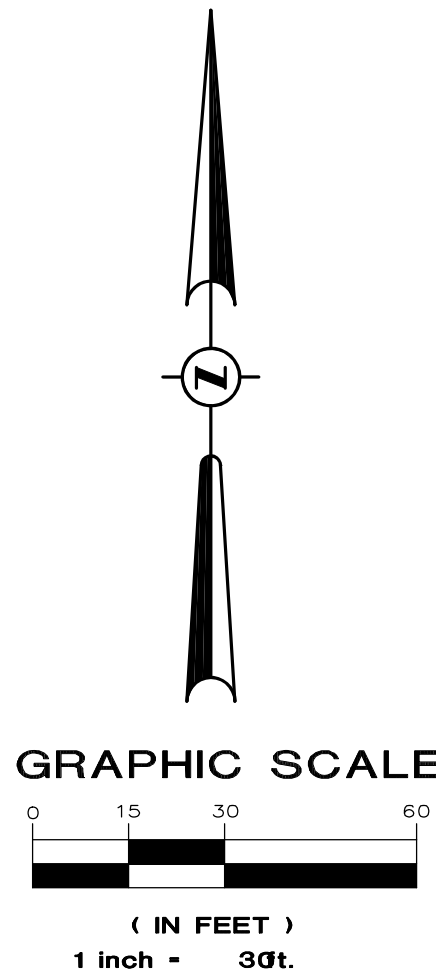
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UTILITY NOTES

- ALL 12" AND LARGER STORM SEWER SHALL BE DUAL WALL HDPE PIPE INSTALLED WITH FULL SAND BACKFILL PER CITY STD. DETAILS. ALL STORM SEWER SHALL BE CONSTRUCTED WITH PREMIUM GASKETED JOINTS.
- ALL 6" STORM ROOF LEADS SHALL BE PVC SDR-26 PIPE,
- WATER SERVICE SHALL BE TYPE K COPPER SERVICE WITH FULL SAND BACKFILL.
- SANITARY SEWER LEADS SHALL BE PVC SDR-26 PIPE INSTALLED WITH FULL SAND BACKFILL AND BEDDING PER CITY STANDARD DETAILS.
- ALL DRAINAGE STRUCTURE CASTINGS LOCATED WITHIN BITUMINOUS PAVEMENT SHALL HAVE CONCRETE COLLARS PER THE SITE DETAILS.
- SANITARY AND WATER BASIS OF DESIGN: 8.0 REU.



LEGEND

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
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	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

Stormwater Detention Calculations

Input Data		
Return Period	25-yr	
Ai (acres)	0.96	
A (acres)	1.31	

Detention Area Calculations		
I, Intensity of Rainfall	= 1.2256	
Qa, Allowable Runoff	= 0.262	0.2 cfs/ac
Qo, Maximum Outflow	= 0.262	cfs
T, Storage Time	= 150.42	min
Vs, Volume of Storage per Ai	= 9485	cft
Vt, Total Storage Required	= 9106	cft

Detention Volume Required

= 9106 cft

Formulas/Definitions	
A, Acreage of Site	
Ai, Proposed Imp. Acres (After Construction)	
Ci, Impervious Run-off Coef.	= 0.90
Cp, Perious Run-off Coef.	= 0.15
I, Intensity of Rainfall	= 215/(25+1)
Qa, Allowable Runoff	= Ci I Ai + Cp I Ap
Qo, Maximum Outflow	= Qa/Ai
T, Storage Time	= [(8062.5/Qo)^0.5]-25
Vs, Volume of Storage per Ai	= [(12900xT)/(1+25)] - 4000T
Vt, Total Storage Required	= Vs x Ai

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	Livornois Site 2 copy
Engineer:	Richard Fosgitt
Project Location:	Michigan
Measurement Type:	Imperial
Required Storage Volume:	9100 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(80 ft. x 100 ft.)

Results

System Volume and Bed Size

Installed Storage Volume:	9276.06 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	46
Number Of End Caps Required:	10
Chamber Rows:	5
Maximum Length:	81.55 ft.
Maximum Width:	36.08 ft.
Approx. Bed Size Required:	2797.01 square ft.

System Components

Amount Of Stone Required:	377.01 cubic yards
Volume Of Excavation (Not including Fill):	569.76 cubic yards

Restrictor Sizing Calculations

Detention Pond		
Qa, Allowable Runoff	0.262	cfs
Pass through (existing)	0.000	cfs
Total Release Rate	0.262	cfs
Design High Water Elev	679.20	
Downstream Water Surface	675.60	Top of stone
Computed Head, h	3.60	Exist 24" outlet full
C (coefficient)	0.62	

Restrictor Sizing Calculations		
Q = CA (2gh)^0.5 (cfs)		
A, Area of Pipe	0.0278	sft
r, Radius of Pipe	0.0940	ft
d, Diameter of Pipe (ft)	0.1880	ft
d, diameter of Pipe (in)	2.2558	in

Restrictor Size Required	2.26	in
Actual Restrictor Size	2.250	in
Actual Release Rate	0.261	cfs O.K.

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ENGINEER

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(989) 513-4058

PREPARED UNDER THE SUPERVISION OF:



PROJECT LOG

DESIGN/ANALYSIS/REVISION	04-17-15
REVISED SITE PLAN REVIEW	08-31-21
	04-04-22

FILE # OVERALL

PROJ MGR: RLF

DESIGN BY: RLF

DRAWN BY: RLF

CHECKED BY:

SCALE: 1"=30'

SHEET: 1 OF 1

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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC

4080 LIVERNOIS ROAD
TROY, MI 48064
OAKLAND COUNTY, MICHIGAN

UTILITY PLAN

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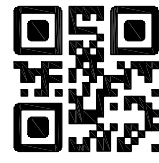
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ADVANCED DRAINAGE SYSTEMS, INC.

4080 LIVERNOIS SITE

TROY, MI

FOR STORMTECH
INSTRUCTIONS,
DOWNLOAD THE
INSTALLATION APP

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (15-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN² AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONE/ROCK LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG-BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

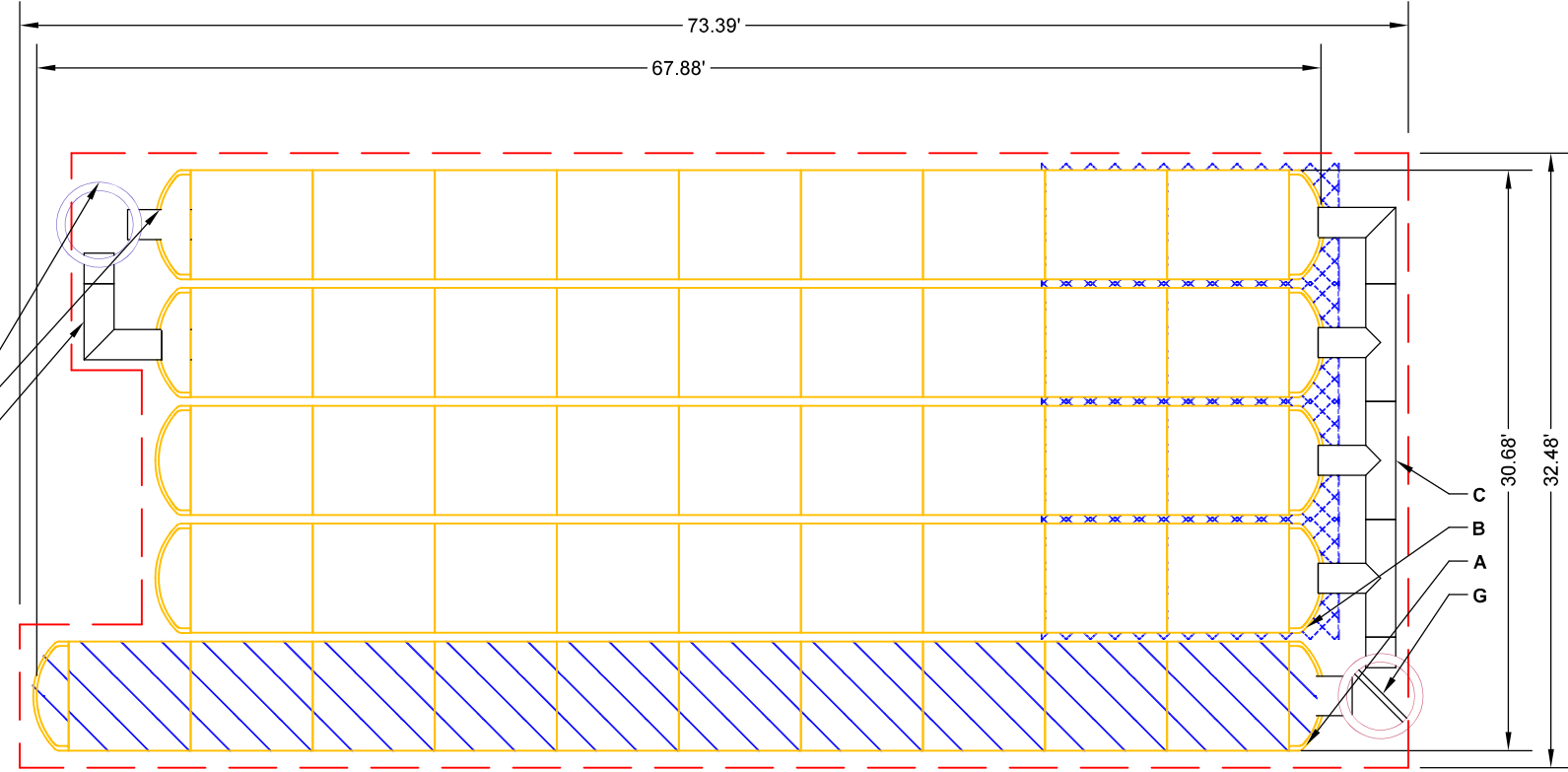
NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER-TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		PROPOSED ELEVATIONS	
46	STORMTECH MC-3500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	686.20
19	STORMTECH MC-3500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	686.70
12	STONE ABOVE (IN)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	678.70
9	STONE BELOW (IN)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	678.70
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	678.20
9276	INSTALLED SYSTEM VOLUME (CF)	TOP OF STONE	678.20
	PERIMETER STONE (INCLUDED)	TOP OF MC-3500 CHAMBER	678.20
	COVER STONE (INCLUDED)	24" ISOLATOR ROW INVERT	674.62
	(BASE STONE INCLUDED)	18" x 18" BOTTOM MANIFOLD INVERT	674.60
2797	SYSTEM AREA (SF)	18" x 18" BOTTOM MANIFOLD INVERT	674.60
243.53	SYSTEM PERIMETER (IN)	18" BOTTOM CONNECTION INVERT	674.45
		BOTTOM OF STONE	673.70



NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION.

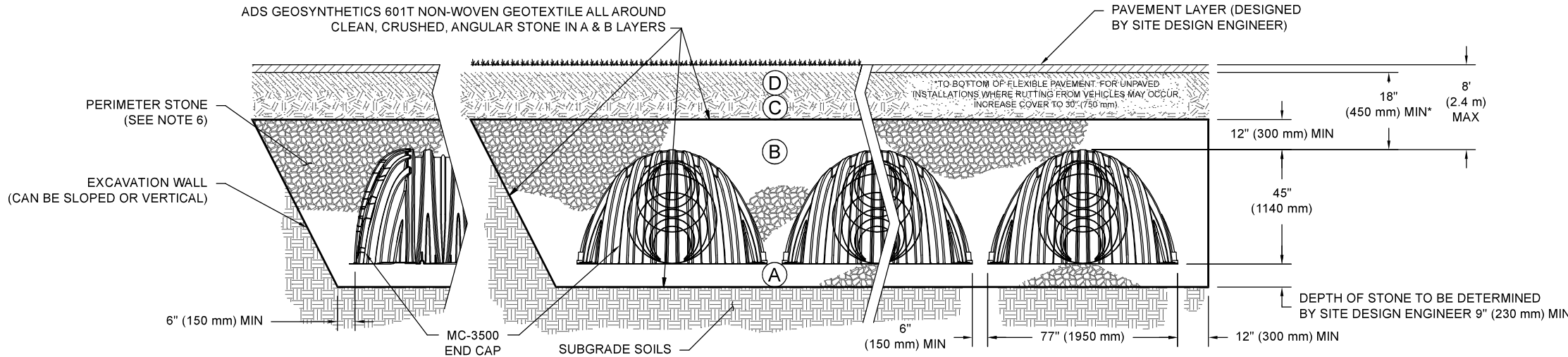
4640 TRUJMAN BLVD
MILLAND, OH 43026
1-800-733-7473SHEET
2 OF 5

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 487, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 98% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

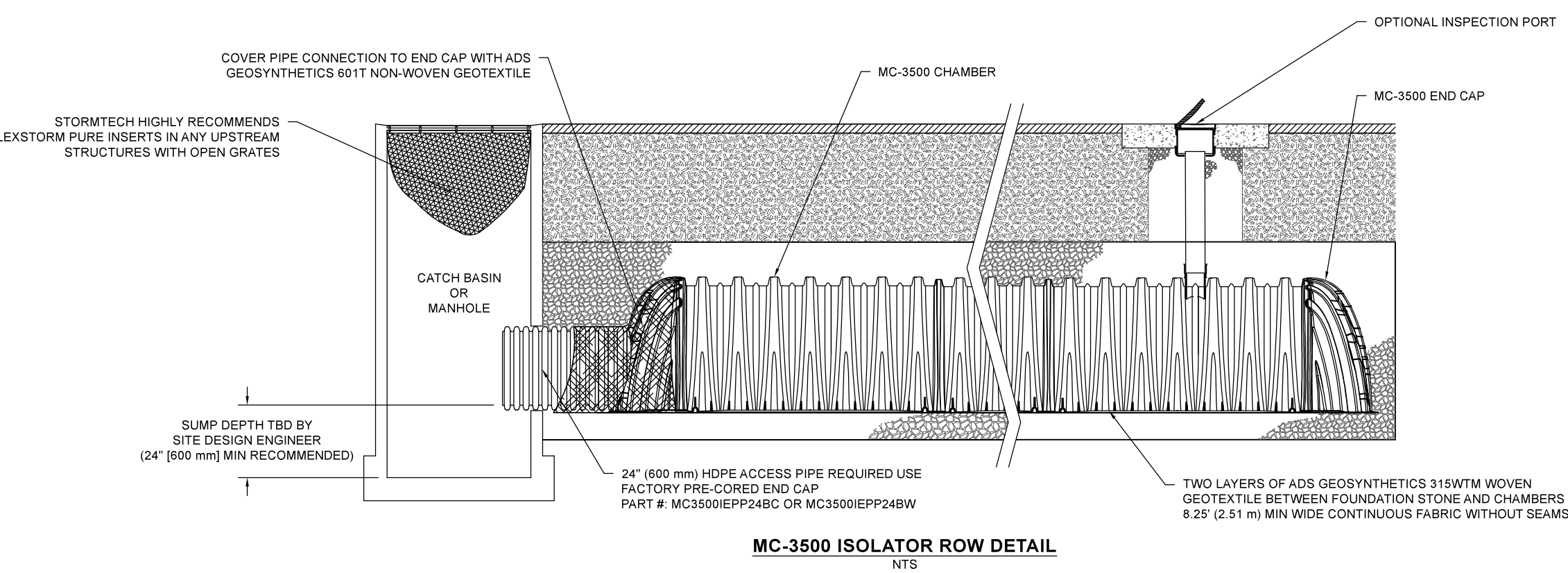
PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR A LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN² AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- INSPECTION PORTS (IF PRESENT)
 - REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - USING A FLASHLIGHT AND STAIN ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - IF SEDIMENT IS AT OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
 - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
 - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - IF SEDIMENT IS AT OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
 - APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS. RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

LIVEROIS SITE 2 COPY		LIVEROIS SITE 2 COPY	
REV	DATE	CHK	DESCRIPTION

LANDSCAPE MAINTENANCE PLAN:

ALL SCREENING ELEMENTS AND PLANT MATERIALS SHALL BE MAINTAINED IN ACCORDANCE WITH THIS SITE PLAN, AND THE FOLLOWING:

A. SCREENING ELEMENTS AND PLANT MATERIALS SHALL BE INSTALLED IN A MANNER CONSISTENT WITH AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS

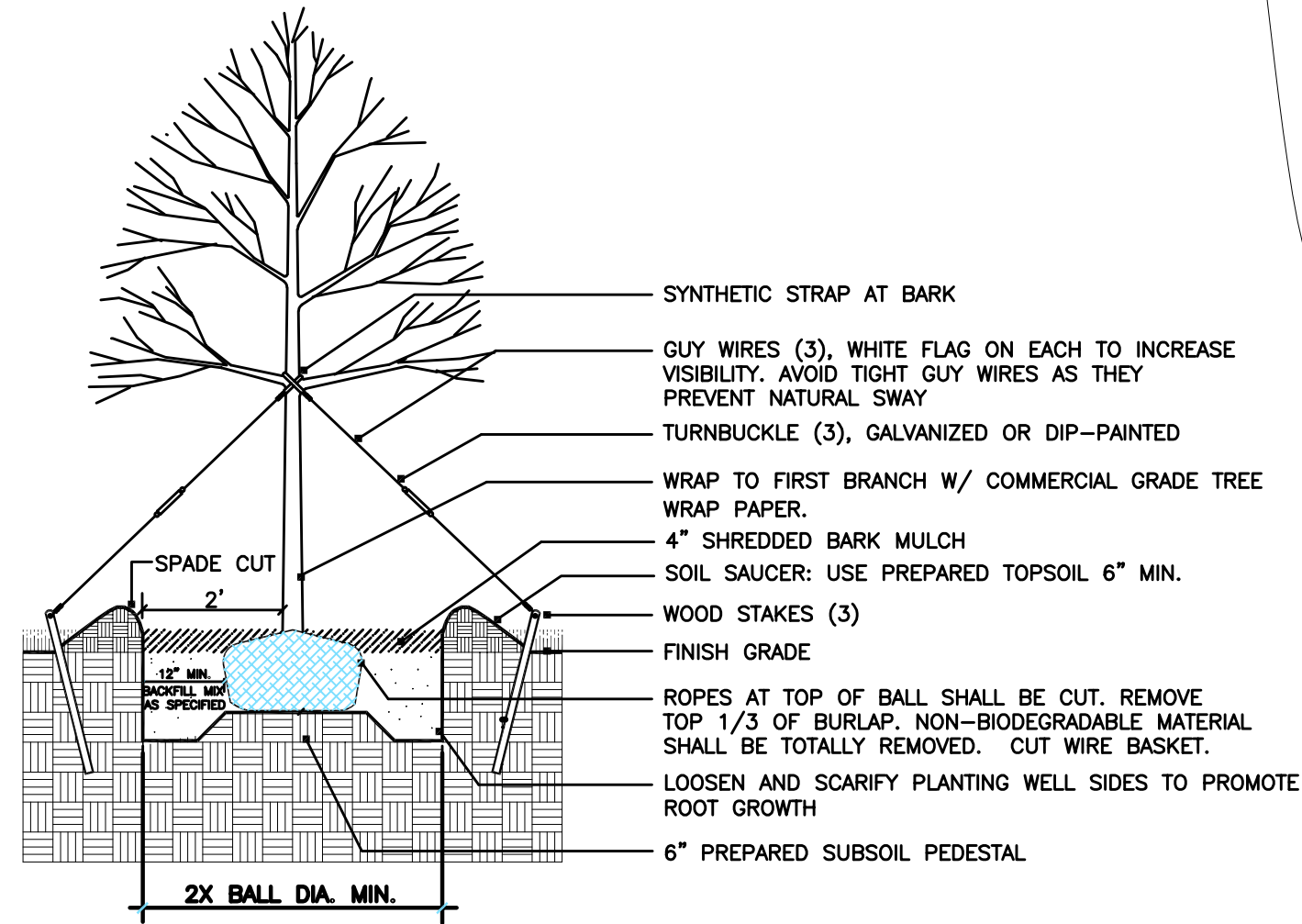
B. IN ADDITION TO THE WATERING-IN REQUIRED AT THE TIME OF PLANTING, WATER, CULTIVATE, AND REMOVE GRASS AND WEEDS AROUND EACH PLANT AT LEAST 5 TIMES DURING THE FIRST FULL YEAR GROWING SEASON TO ENSURE HEALTHY PLANTING GROWTH. DURING EACH WATERING AND CULTIVATION, REMOVE GRASS AND WEEDS WITHIN THE MULCH RING. CUT GRASS TO 3 INCHES HIGH. INSPECT LANDSCAPING AND REMOVE INSECT INFESTATIONS OR DISEASE DAMAGE TO THE PLANTS AND PRUNE DEAD WOOD.

C. DURING THE FIRST AND SECOND WATERING OF THE SECOND GROWING SEASON, USE A NITROGEN-ENRICHED SOLUTION AS PART OF WATERING. APPLY FERTILIZER BEFORE JULY 7. AT THE FIRST WATERING OF THE SECOND GROWING SEASON, REMOVE AND DISPOSE OF THE GUYING MATERIAL, WRAPPING MATERIAL, IDENTIFICATION TAGS, AND INSPECTION TAGS. AT THE FINAL WATERING, REPLENISH THE MULCH AROUND THE PLANTS TO A DEPTH OF 4-6 INCHES.

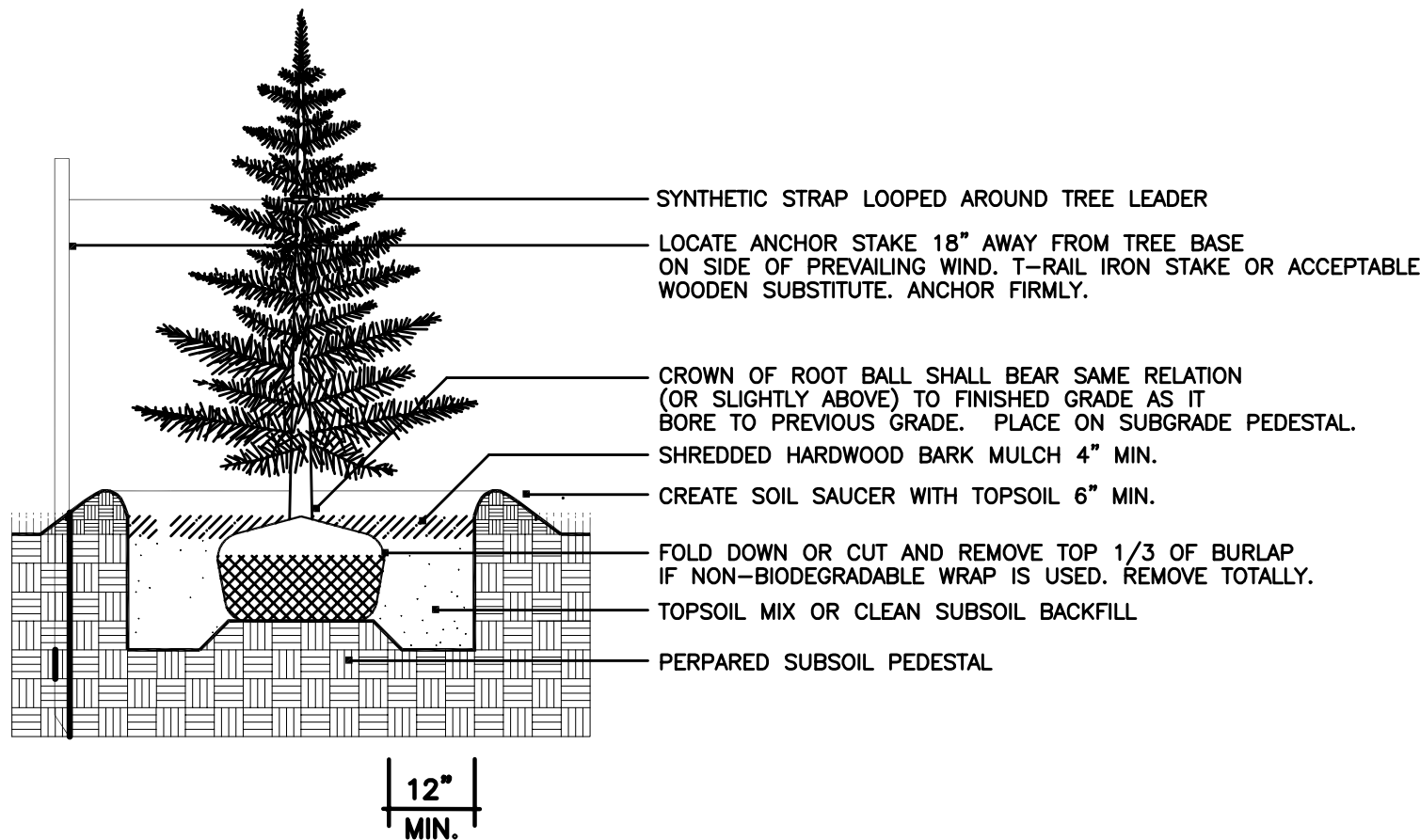
D. PRUNING OF PLANT MATERIALS SHALL BE LIMITED TO THE MINIMUM NECESSARY TO ENSURE PROPER MATURATION OF PLANTS TO ACHIEVE THEIR INTENDED PURPOSE. ENSURE AN ARBORIST, CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE, PRUNES BRANCHES BEFORE PLANTING. DO NOT USE PRUNING PAINT. PRUNE DECIDUOUS TREES TO REMOVE DEAD WOOD AND BROKEN BRANCHES. PRUNE EVERGREENS TO REMOVE BROKEN OR DAMAGED BRANCHES. PRUNE SHRUBS TO FORM AN OUTLINE CONFORMING TO THE GENERAL SHAPE OF THE SHRUB TYPE.

E. PLANT MATERIALS SHALL BE KEPT IN A NEAT, ORDERLY AND HEALTHY GROWING CONDITION, FREE FROM WEEDS, DEBRIS AND REFUSE. ALL REQUIRED PLANTINGS SHALL BE PLANTED AND MAINTAINED AS SHOWN. OWNER SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF DEAD OR DISEASED PLANT MATERIALS.

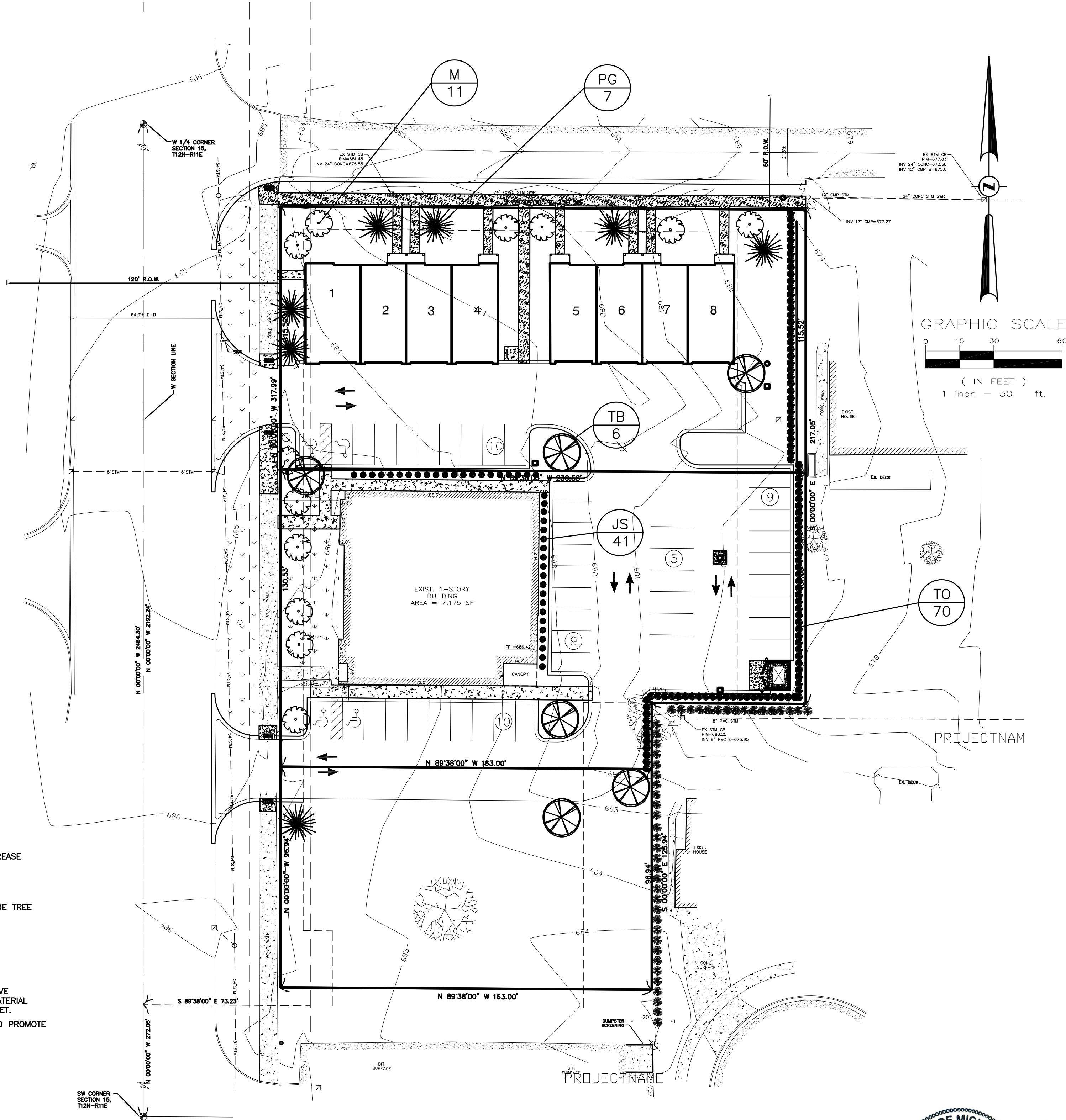
F. THE REPLACEMENT OR REMOVAL OF ANY PLANT MATERIALS IN A MANNER NOT CONSISTENT WITH THIS SITE PLAN IS NOT PERMITTED WITHOUT CITY APPROVAL.



TYPICAL TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL EVERGREEN PLANTING DETAIL
NOT TO SCALE



NOTES:

1. BARK MULCH AREAS NOTED ON PLANS SHALL CONSIST OF 4" DEPTH OF SHREDDED HARDWOOD BARK MULCH.
2. A SIX FOOT DIAMETER SHREDDED HARDWOOD BARK MULCH RING SHALL BE PLACED AROUND ALL PROPOSED PLANTINGS NOT DESIGNATED FOR PLANTERS.
3. ALL PLANT MATERIAL AND PLANTINGS SHALL CONFORM TO ANSI 260.1 OR CURRENT EDITION.
4. AREAS NOT SPECIFIED WITH PLANT MATERIAL SHALL BE FINE GRADED AND SEEDED FOR TURF ESTABLISHMENT.
5. CONTRACTOR /LANDSCAPE CONTRACTOR SHALL COORDINATE FINAL PLACEMENT OF ALL PLANT MATERIAL LOCATIONS FOR APPROVAL BY ENGINEER IN RELATION TO FINAL UTILITY PLACEMENT.
6. WHERE A DISCREPANCY IS FOUND BETWEEN EXISTING FIELD CONDITIONS AND/OR REQUIRED LANDSCAPING WORK, NOTIFY OWNER OR ENGINEER FOR CLARIFICATION IMMEDIATELY.
7. ALL EXCESS EXCAVATED MATERIALS AND DEBRIS, WHICH ARE NOT ACCEPTED FOR DISPOSAL ON SITE BY THE OWNER SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF LEGALLY OFFSITE.
8. PLANT DECIDUOUS PLANTS FROM MARCH 1 TO MAY 15 AND FROM OCTOBER 1 UNTIL THE PREPARED SOIL FREEZES. IF UNUSUAL PLANTING CONDITIONS EXIST OR IF USING CONTAINER-GROWN MATERIAL, THE ENGINEER MAY ALTER THESE PLANTING SEASONS. PLANT EVERGREEN PLANTS FROM MARCH 1 TO JUNE 1.
9. SEEDING SHALL OCCUR FROM APRIL 15 THROUGH OCTOBER 10. DORMANT SEEDING IS PERMITTED AFTER NOVEMBER 15, BUT NOT ON FROZEN GROUND.
10. ALL TURF ESTABLISHMENT SHALL BE DONE BY HYDROSEEDING WITH A COMMERCIAL MIXTURE INCLUDING SEED, FERTILIZER, AND MULCH. SEED MIX SHALL BE APPROVED FOR HEAVY SOIL IN FULL SUN CONDITIONS AND APPLIED AT A MINIMUM RATE OF 400 LBS PER ACRE.
11. THE OWNER SHALL BE RESPONSIBLE TO MAINTAIN ALL LANDSCAPING PER THE MAINTENANCE PLAN CONTAINED HEREIN AND IN ACCORDANCE WITH ALL CITY REQUIREMENTS.
12. CONTRACTOR TO BE FAMILIAR WITH AND ADHERE TO ALL LANDSCAPING REQUIREMENTS OUTLINED IN ARTICLE 13, SECTION 13.02 LANDSCAPING, OF THE CITY OF TROY ZONING ORDINANCE.

LANDSCAPING REQUIREMENTS

REQUIRED SITE LANDSCAPING:

REQUIREMENT	REQUIREMENT	PROVIDED
13.02.B SCREENING BETWEEN USES: REQUIRED: ABUTS RESID. ADJ. TO OFFICE TO THE EAST, ALT. 1 OR ALT. 2 PROVIDED: ALT. 1, 1 NARROW EXG. PER 3 FT.	315 LFT 105 TREES	105 TREES
13.02.E GENERAL SITE LANDSCAPE: REQUIRED: 20% OF SITE AREA SHALL BE LANDSCAPE MATERIAL 41,820 SFT X 20% = 8,364 SFT REQUIRED	8,364 SFT 20.0%	14,197 SFT 33.9%
13.02.C LANDSCAPING WITHIN PARKING LOTS: REQUIRED: 1 TREE FOR EVERY 8 SPACES; 200 SFT MIN CURBED ISLANDS	43 SPACES 6 TREES	6 TREES
13.02D GREENBELT STANDARDS: REQUIRED: 1 TREE FOR EVERY 30 LFT	500 LFT 17 TREES	17 TREES



THIS LANDSCAPE PLAN HAS BEEN REVIEWED BY WESLEY K. LANDON, A LANDSCAPE ARCHITECT LICENSED IN THE STATE OF MICHIGAN (LICENSE NO. 3901001603), AND DETERMINED TO BE COMPLETE BASED ON THE CITY OF TROY ZONING ORDINANCE SECTION 13.02 -LANDSCAPING.

LANDSCAPE PLANTING SCHEDULE

SYM	KEY	QUANTITY	SIZE	BOTANICAL NAME	COMMON NAME	NOTES
●	TO	105	6' TALL	THUJA OCCIDENTALIS 'TECHNY'	TECHNY ARBORVITAE	BALLED IN BURLAP
●	PG	7	6' TALL	PICEA GLAUCA	MONTROSE CHARM	BALLED IN BURLAP
●	M	11	2 1/2" CALIPER	MALUS 'PRAIRIEFIRE'	PRAIRIEFIRE CRABAPPLE	BALLED IN BURLAP
●	TB	6	2 1/2" CALIPER	TILIA AMERICANA 'BOULEVARD'	BOULEVARD LINDEN	BALLED IN BURLAP
●	JS	41	2.5 QT 24" HT.	JUNIPERUS SABINA 'BROADMORE'	BROADMORE JUNIPER	4' ON CENTER

PROPRIETOR

STRATEGIC PROPERTY SERVICES, LLC
ATTN: VINCE PANGLE
5750 NEW KING STREET, STE 350
TROY, MI 48068

SURVEYOR

D&M SITE, INC.
401 BALSAM STREET
CARROLLTON, MI 48624
(989) 752-6500

ENGINEER

REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, P.E.
2807 HIGHBROOK DRIVE
MIDLAND, MI 48642
(989) 513-4058

PREPARED UNDER THE SUPERVISION OF:
RICHARD FOSGITT, P.E.
REGISTERED PROFESSIONAL ENGINEER
No. 43193
STATE OF MICHIGAN

PROJECT LOG
FILE # OVERALL
PROJ MGR: RLF
DESIGN BY: RLF
DRAWN BY: RLF
CHECKED BY: RLF
SCALE: 1"=30'
SHEET: 1 OF 1

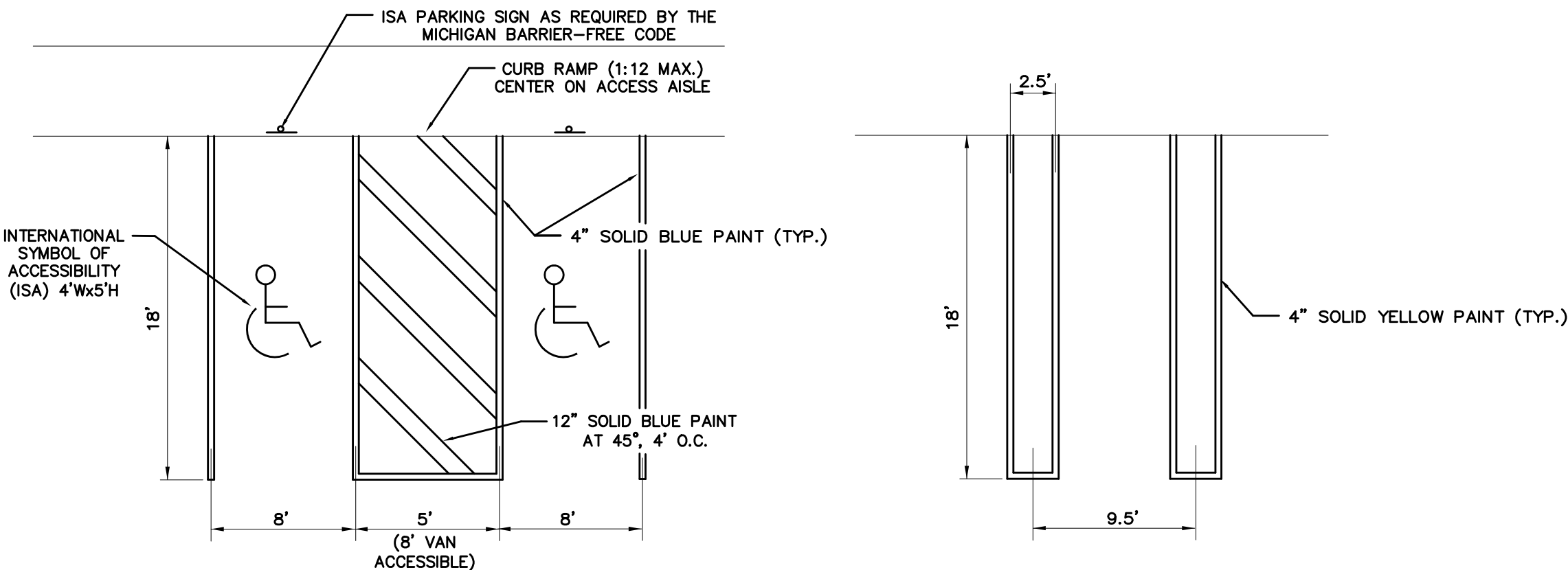
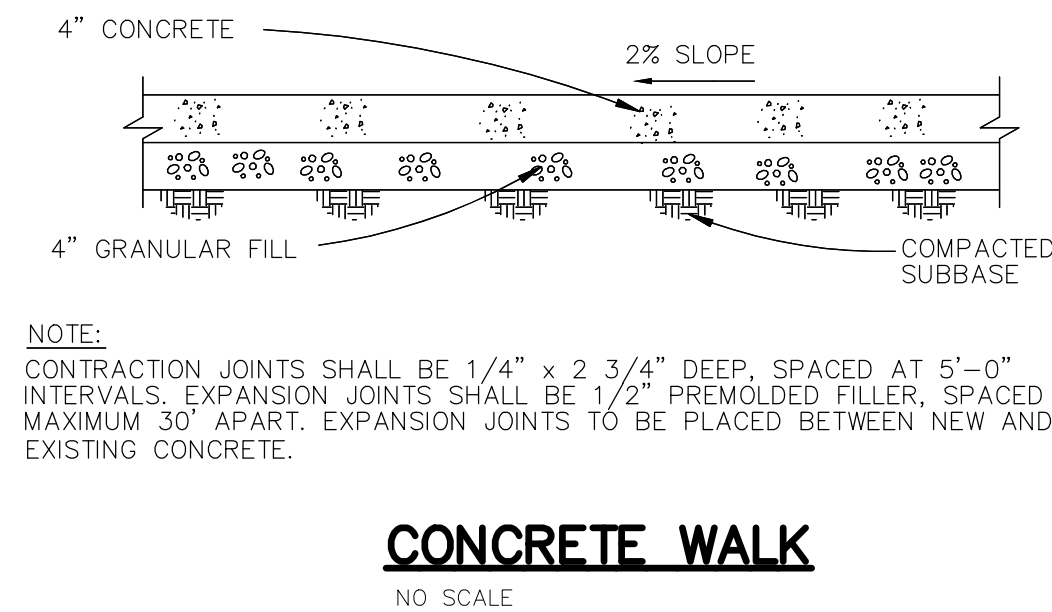
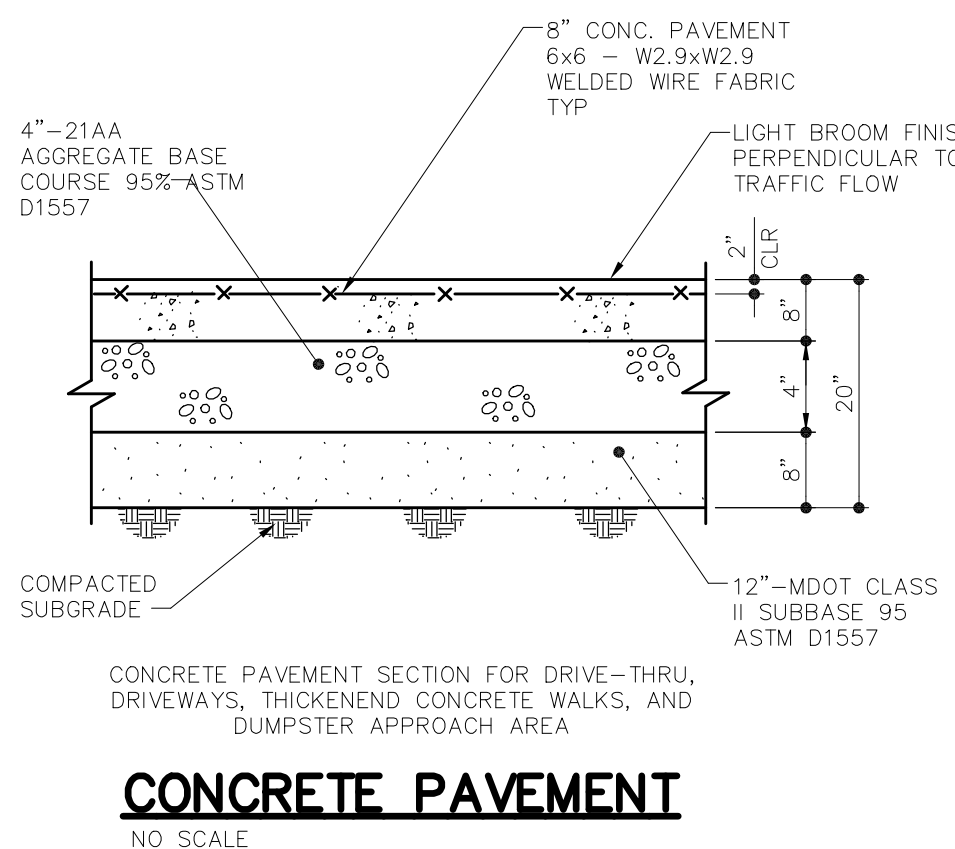
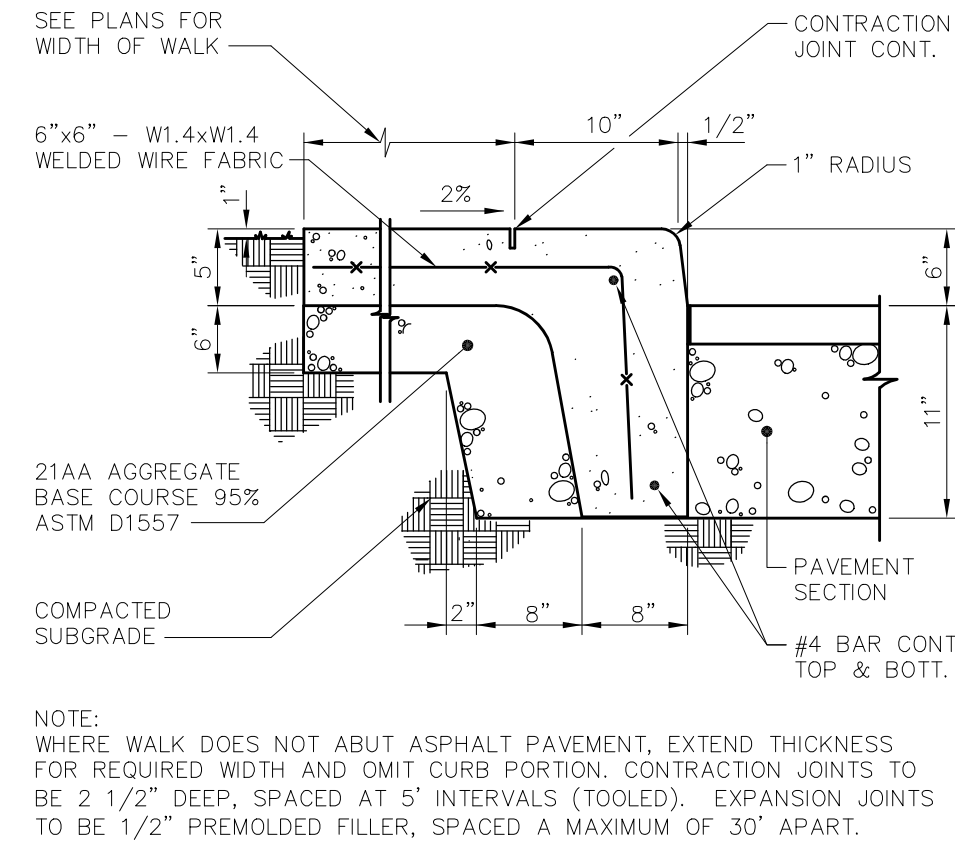
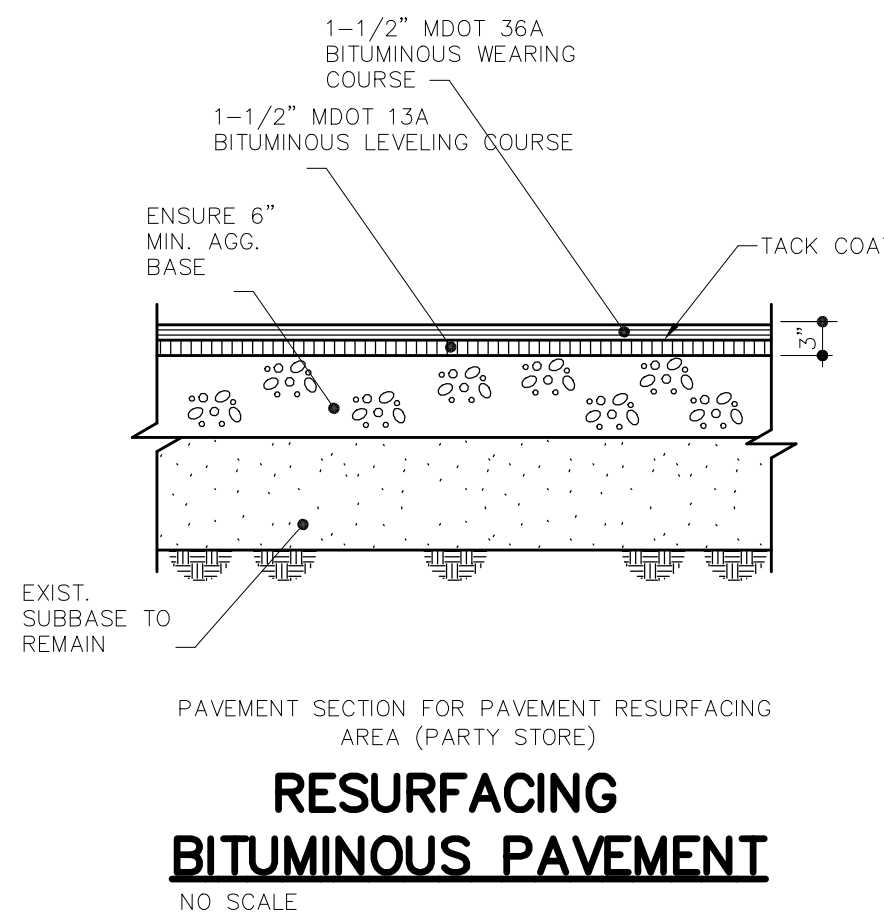
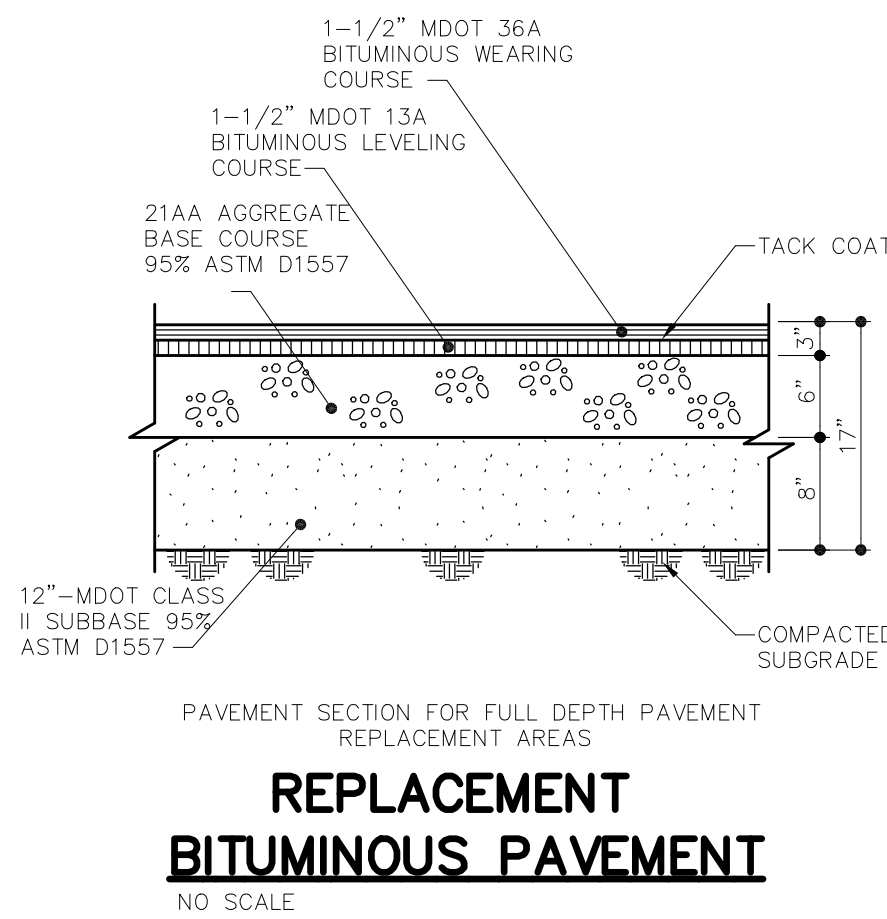
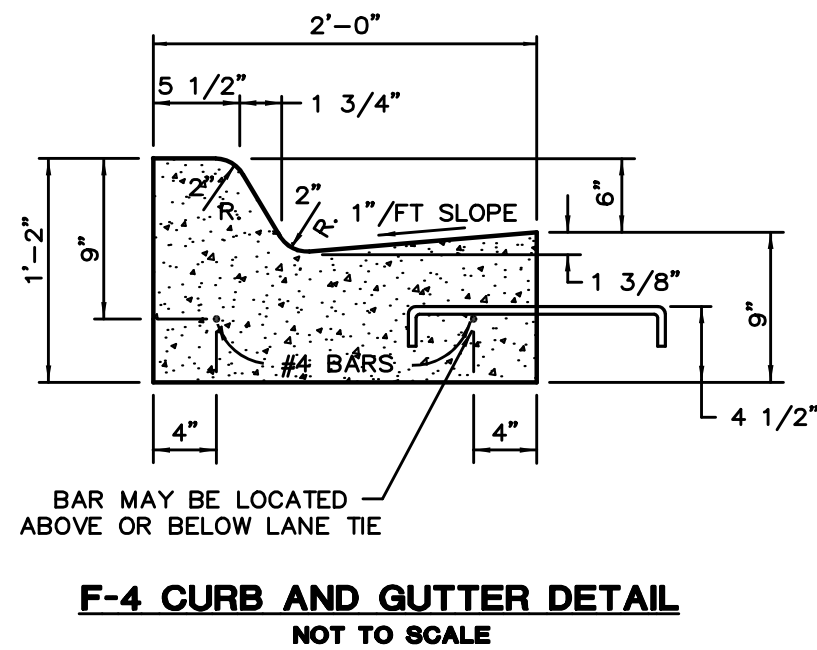
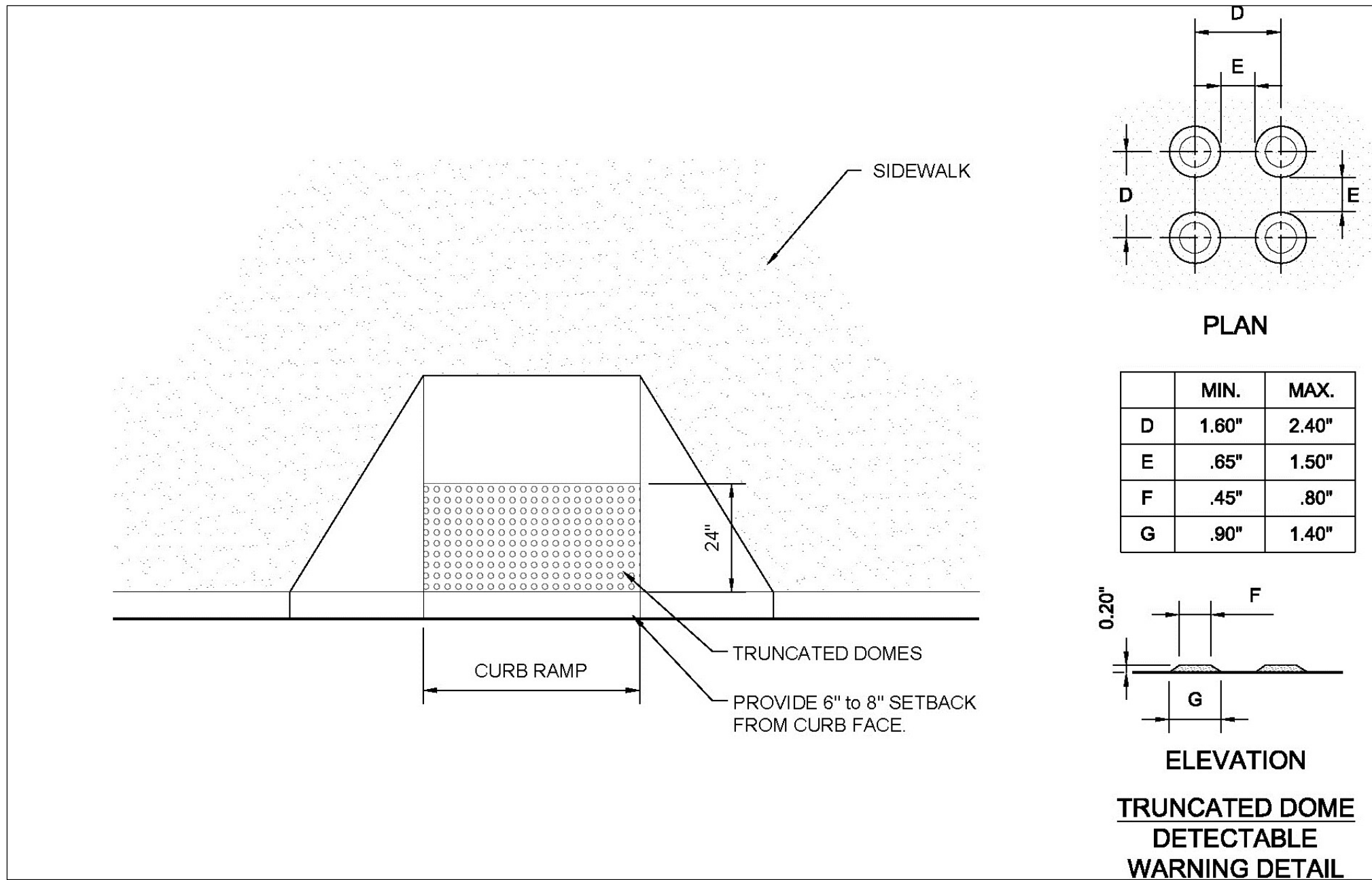
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989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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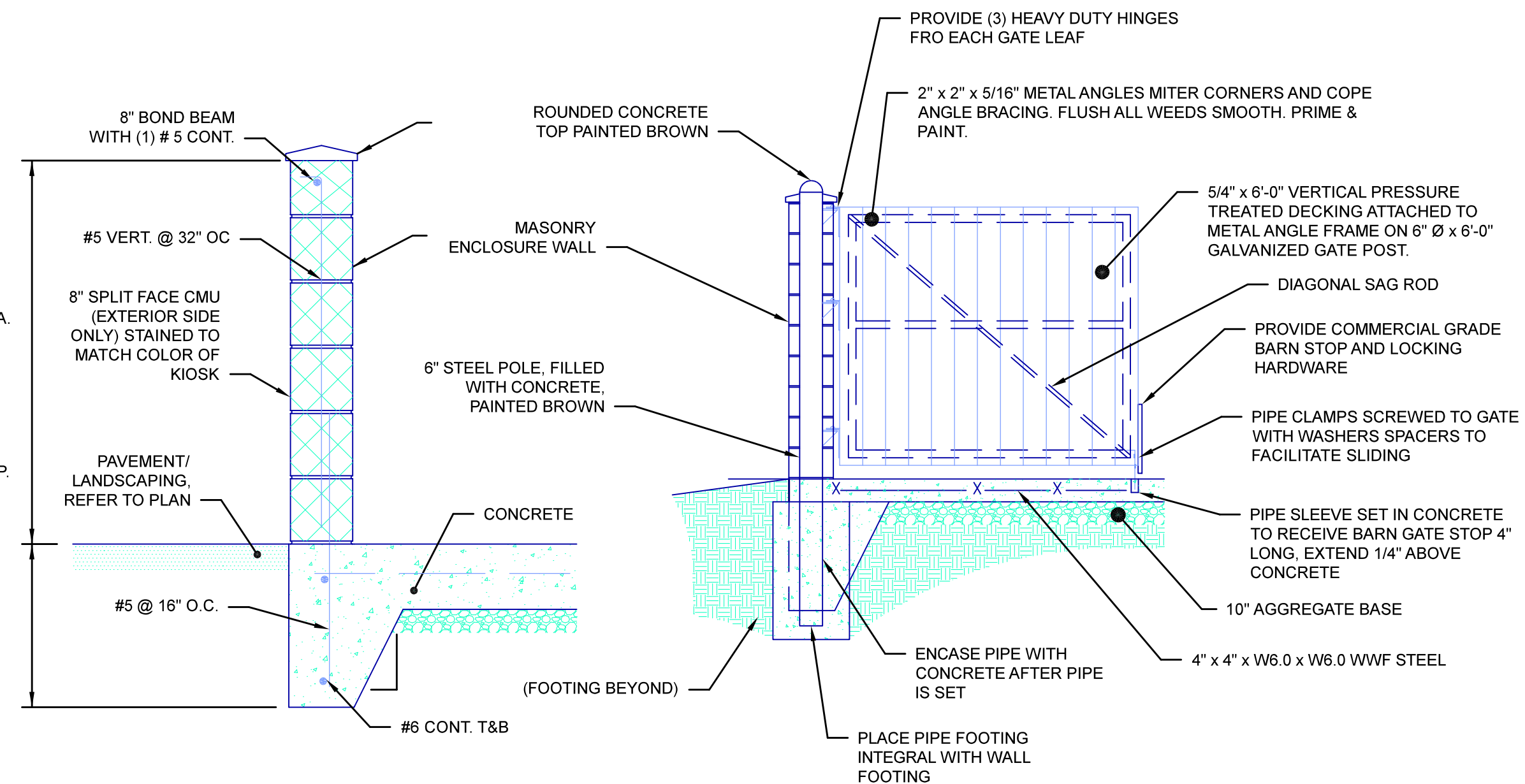
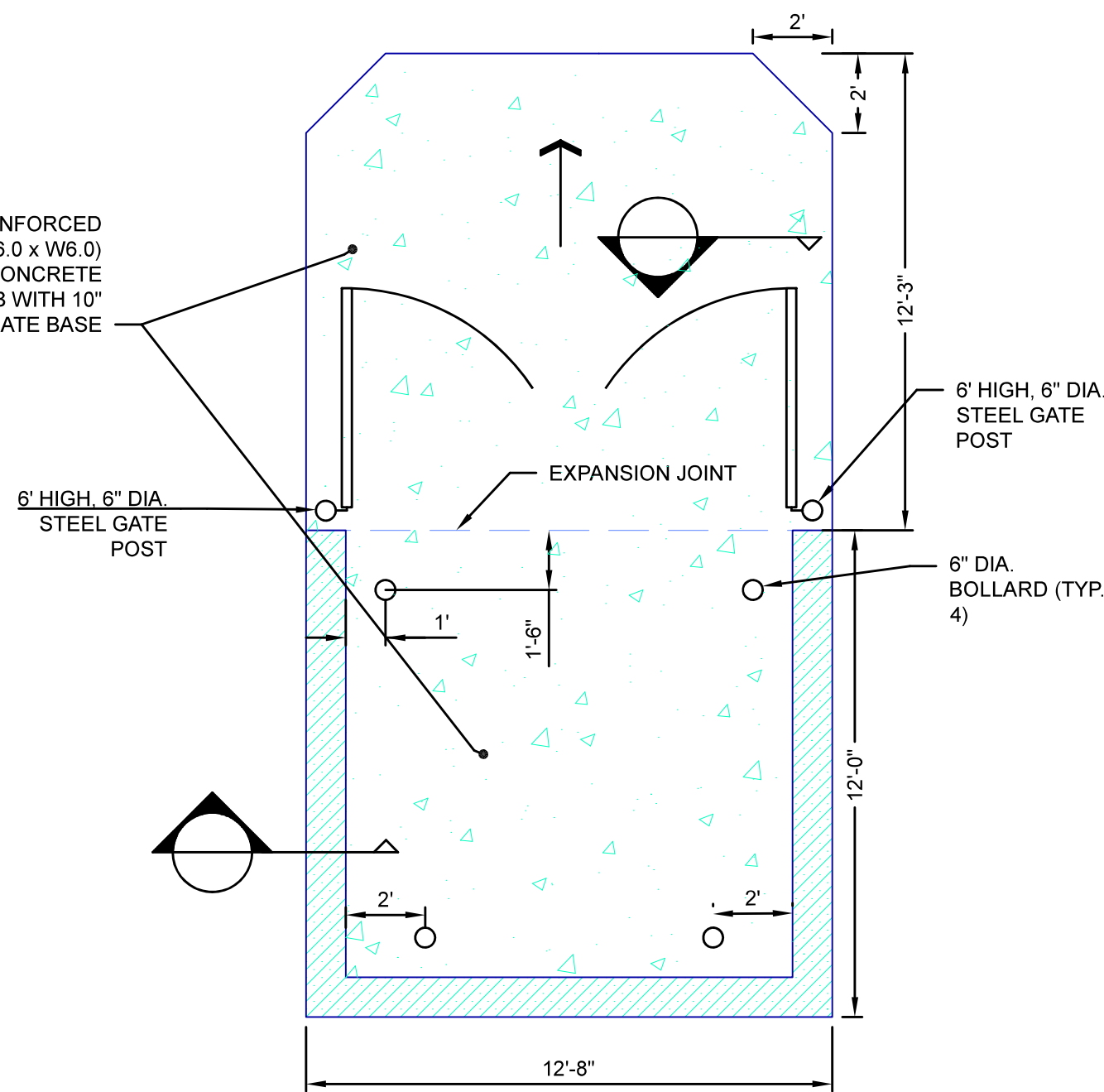
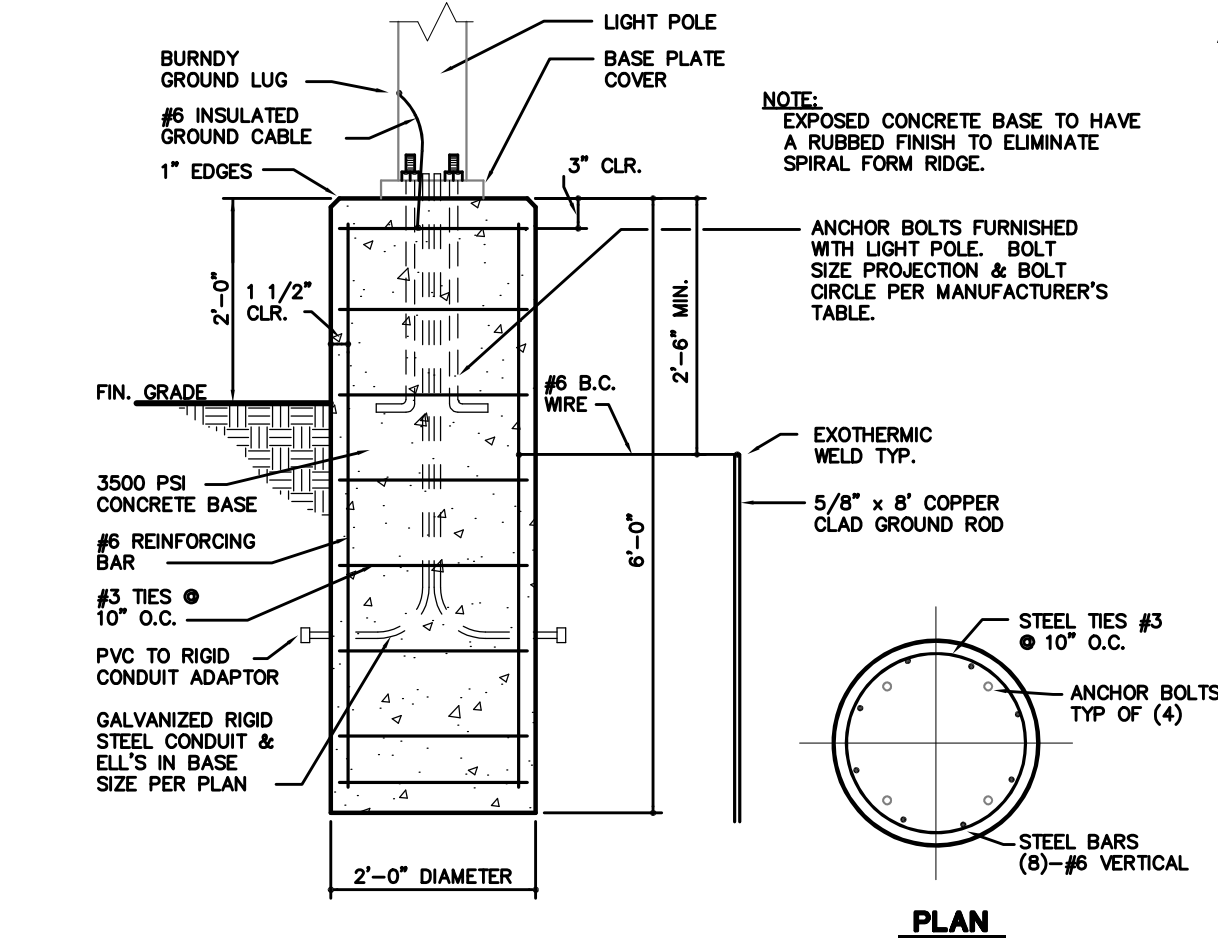
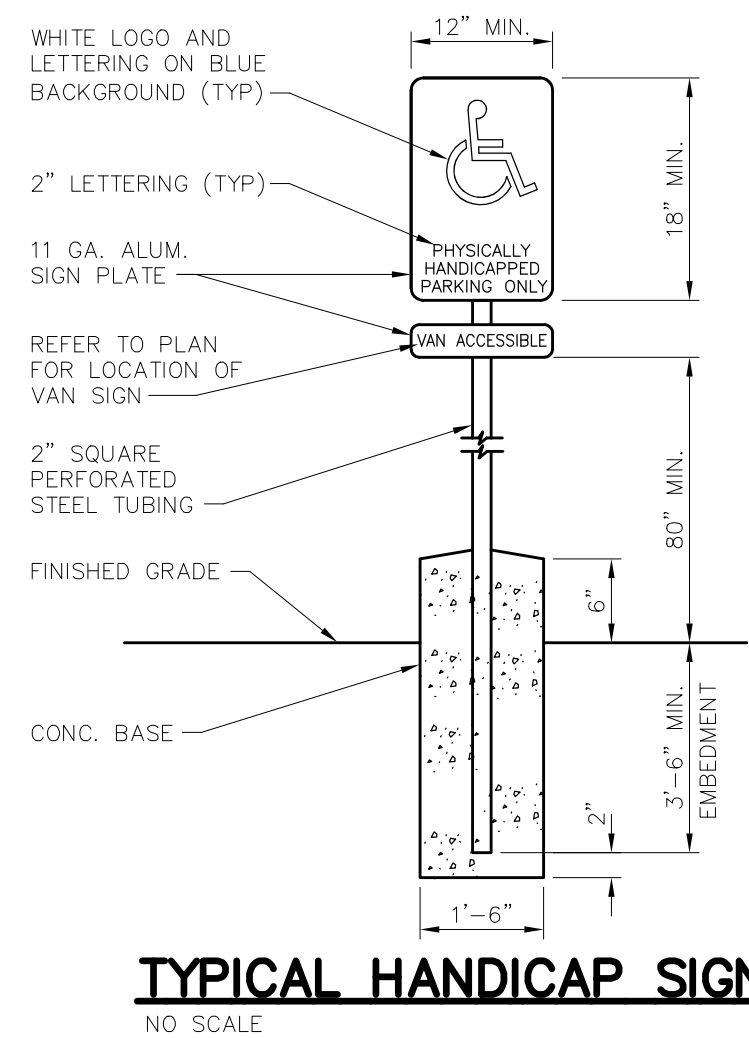
LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4080 LIVERNOIS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

OVERALL LANDSCAPING PLAN

C5.0
180401



PAVEMENT MARKING DETAIL



DUMPSTER ENCLOSURE GATE DETAIL
SCALE: NTS

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG

FILE #	OVERALL	PROJ. MGR.	DESIGN BY:	CHECKED BY:	SCALE:	SHEET:
	R/LF	R/LF	R/LF	NONE	NONE	1 OF 1

REDRIDGE ENGINEERING, LLC
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989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC

4080 LIVERNOIS ROAD
CITY OF OAKLAND
OAKLAND COUNTY, MICHIGAN

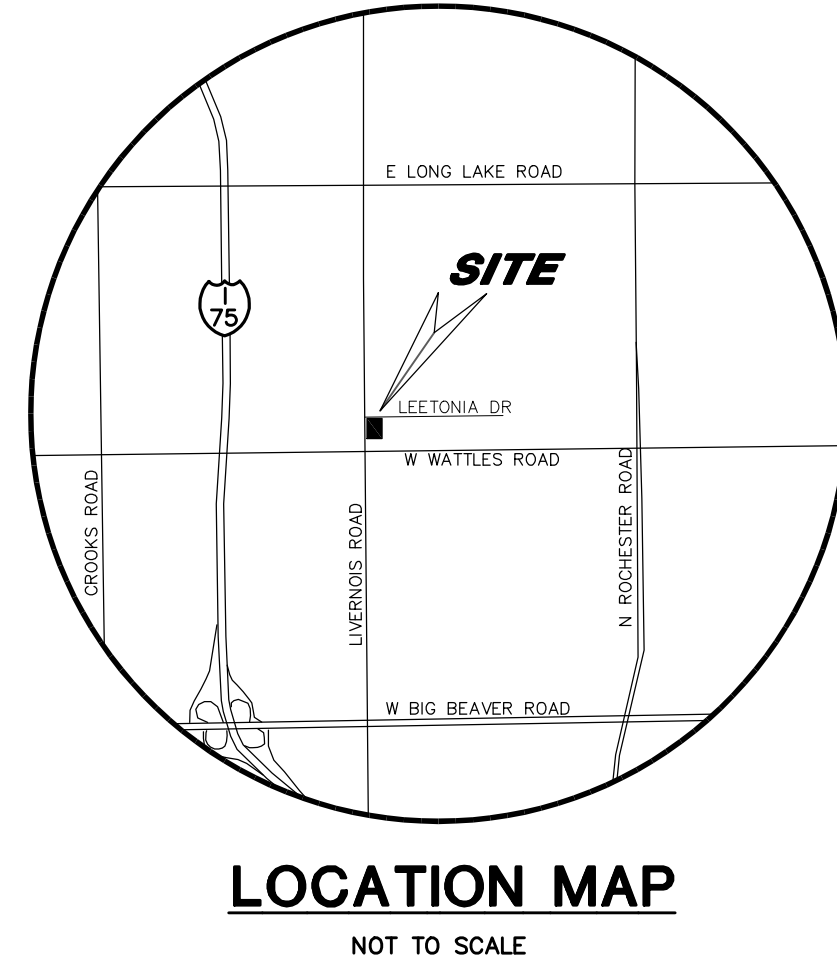
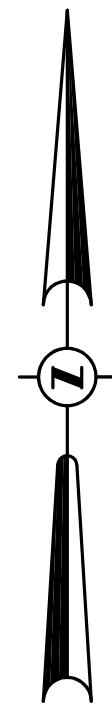
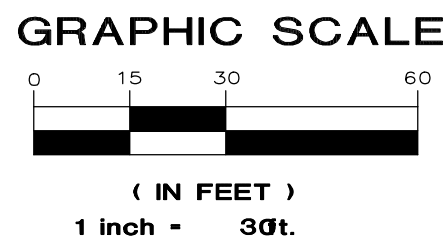
811
Know what's below.
Call before you dig.

C6.0
180401

Symbol	Label	Quantity/Structure	Location	Description	Notes	Quantity/Structure	Location	Description	Notes
A	1	1	1	1	1	1	1	1	1
B	2	2	2	2	2	2	2	2	2
C	3	3	3	3	3	3	3	3	3

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	0.4 fc	11.1 fc	0.0 fc	N/A	N/A

Luminaire Locations										
		Location						Aim		
No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z
2	A	172.00	154.00	20.00	20.00	359.10	0.00	171.98	153.14	0.00
3	A	61.00	256.00	20.00	20.00	1.30	0.00	61.03	257.14	0.00
4	A	178.00	238.00	20.00	20.00	270.00	0.00	176.86	238.00	0.00
5	A	117.00	79.00	20.00	20.00	0.00	0.00	117.00	80.15	0.00
6	A	45.00	80.00	20.00	20.00	1.55	0.00	45.03	81.14	0.00
1	B	35.00	274.00	10.00	10.00	180.00	0.00	35.00	274.00	0.00
2	B	75.00	274.00	10.00	10.00	180.00	0.00	75.00	274.00	0.00
3	B	139.00	274.00	10.00	10.00	180.00	0.00	139.00	274.00	0.00
4	B	179.00	274.00	10.00	10.00	180.00	0.00	179.00	274.00	0.00
5	B	110.00	137.00	10.00	10.00	90.00	0.00	110.00	137.00	0.00
6	B	110.00	203.00	10.00	10.00	90.00	0.00	110.00	203.00	0.00
7	B	110.00	171.00	10.00	10.00	90.00	0.00	110.00	171.00	0.00
1	C	52.00	321.00	10.00	10.00	0.00	0.00	52.00	321.00	0.00
2	C	60.00	321.00	10.00	10.00	0.00	0.00	60.00	321.00	0.00
3	C	91.00	321.00	10.00	10.00	0.00	0.00	91.00	321.00	0.00
4	C	122.00	321.00	10.00	10.00	0.00	0.00	122.00	321.00	0.00
5	C	154.00	321.00	10.00	10.00	0.00	0.00	154.00	321.00	0.00
6	C	161.00	322.00	10.00	10.00	6.12	0.00	161.00	322.00	0.00
7	C	192.00	321.00	10.00	10.00	8.37	0.00	192.00	321.00	0.00
8	C	9.00	312.00	10.00	10.00	271.47	0.00	9.00	312.00	0.00
9	C	100.00	306.00	10.00	10.00	90.00	0.00	100.00	306.00	0.00
10	C	115.00	286.00	10.00	10.00	270.00	0.00	115.00	286.00	0.00



LEGEND
MONUMENT / SECTION CORNER
FOUND PROPERTY IRON
SET PROPERTY IRON W/CAP NO.26454
SET MAG NAIL
EXISTING CATCHBASIN
EXISTING MANHOLE/CATCHBASIN
EXISTING MANHOLE
EXISTING HYDRANT
EXISTING VALVE
EXISTING SANITARY SEWER
EXISTING STORM SEWER
EXISTING WATERMAIN
EXISTING FENCE LINE
EXISTING UNDERGROUND ELECTRIC LINE
EXISTING UNDERGROUND GAS LINE
EXISTING UNDERGROUND TELEPHONE LINE
EXISTING CENTERLINE
EXISTING OVERHEAD ELECTRICAL WIRES
EXISTING MAILBOX/NEWSPAPER BOX
EXISTING SIGN
EXISTING DECIDUOUS TREES
EXISTING CONIFEROUS TREES
EXISTING UTILITY POWER POLE
EXISTING TELEPHONE RISER
EXISTING BOLLARD
EXISTING LIGHT POLE
EXISTING GAS METER
EXISTING TRANSFORMER
EXISTING FLAGPOLE
EXISTING SURFACE
EXISTING BITUMINOUS SURFACE
EXISTING CONCRETE SURFACE

D-Series Size 1 LED Area Luminaire

Introduction: The modern styling of the D-Series is striking yet understated - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficiency, long life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for mediating up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications: EFL: 1.01 ft (305 mm), Length: 33" (838 mm), Width: 13" (330 mm), Height H1: 7-1/2" (190 mm), Height H2: 3-1/2" (89 mm), Weight (max): 27 lbs (12.2 kg).

Ordering Information: EXAMPLE: DSK1 LED P7 40K T3M MVOLT SPA NLTARD PRHND DBXID

Series	Model	Color Temperature	Beam Spread	Beam Angle	Beam Diameter	Beam Length	Beam Area
DSK1 LED	P7	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P7	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P7	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P7	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)

WEDGE 2 LED Architectural Wall Scape Visual Comfort Optic

Introduction: The WEDGE LED family is designed to meet specific every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean, minimalist design comes in four sizes with luminaire packages ranging from 1,000 to 25,000 lumens, providing a true site-wide solution. Embedded with LightBulb AR wireless controls, the WEDGE family provides additional energy savings and code compliance.

Specifications: Depth (D1): 7", Depth (D2): 1.5", Height: 9", Width: 11.5", Weight: 13.5 lbs.

Ordering Information: EXAMPLE: WEDGE2 LED P3 40K 80CRI VF MVOLT SRM DBXID

Series	Package	Color Temperature	Beam Spread	Beam Angle	Beam Diameter	Beam Length	Beam Area
WEDGE2 LED	P3	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P3	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P3	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)
	P3	40K	40°	15°	1.01 ft (305 mm)	1.01 ft (305 mm)	1.01 ft (305 mm)

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS: Provides years of maintenance-free illumination for outdoor use in residential & commercial applications. Ideal applications include lighting walkways and stairways for safety and security.

Ordering Information: EXAMPLE: OLLWD LED P1 40K MVOLT DBX

Series	Performance Package	Color Temperature (CCT)	Voltage	Finish
OLLWD LED	P1	40K	120V-277V	300
	P1	40K	120V	300

PROPRIETOR

STRATEGIC PROPERTY SERVICES, LLC

ATTN: VINCE PANGLE

5750 NEW KING STREET, STE 350

TROY, MI 48068

SURVEYOR

D&M SITE, INC.

401 BALSAM STREET

CARROLLTON, MI 48624

(989) 752-6500

ENGINEER

REDRIDGE ENGINEERING, LLC

RICHARD FOSGITT, P.E.

2807 HIGHBROOK DRIVE

MIDLAND, MI 48642

(989) 513-4058

LANGE VIEW TOWNHOUSES

STRATEGIC PROPERTY SERVICES, LLC

4088 LIVERNOIS ROAD

CITY OF TROY, MICHIGAN

OAKLAND COUNTY, MICHIGAN

PHOTOMETRIC PLAN

E1.0

180401

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG

FILE # OVERALL

PROJ MGR:

DESIGN BY:

CHECKED BY:

SCALE: 1"=30'

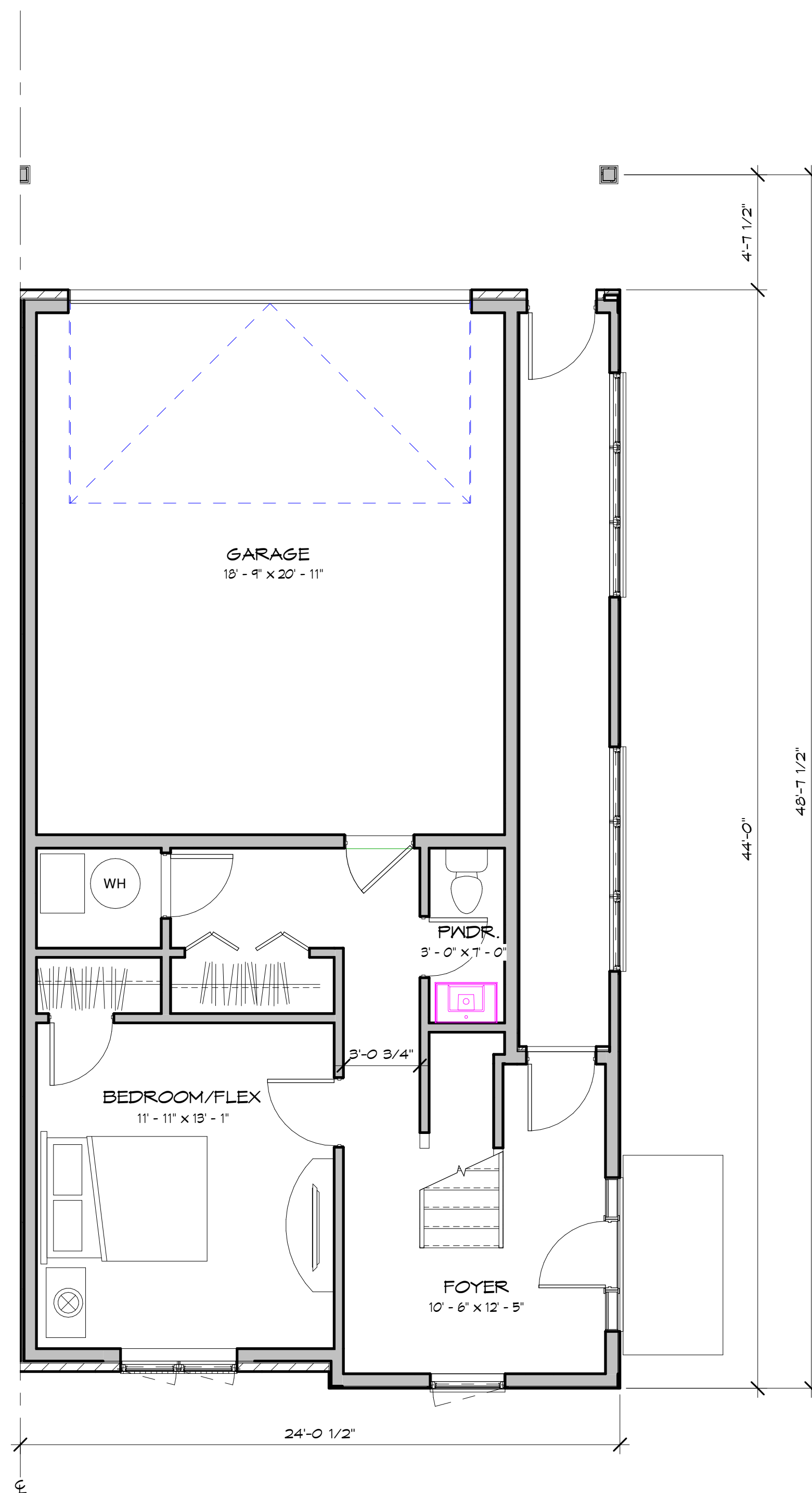
SHEET: 1 OF 1

REDRIDGE ENGINEERING, LLC

2807 HIGHBROOK DRIVE, MIDLAND, MI 48642

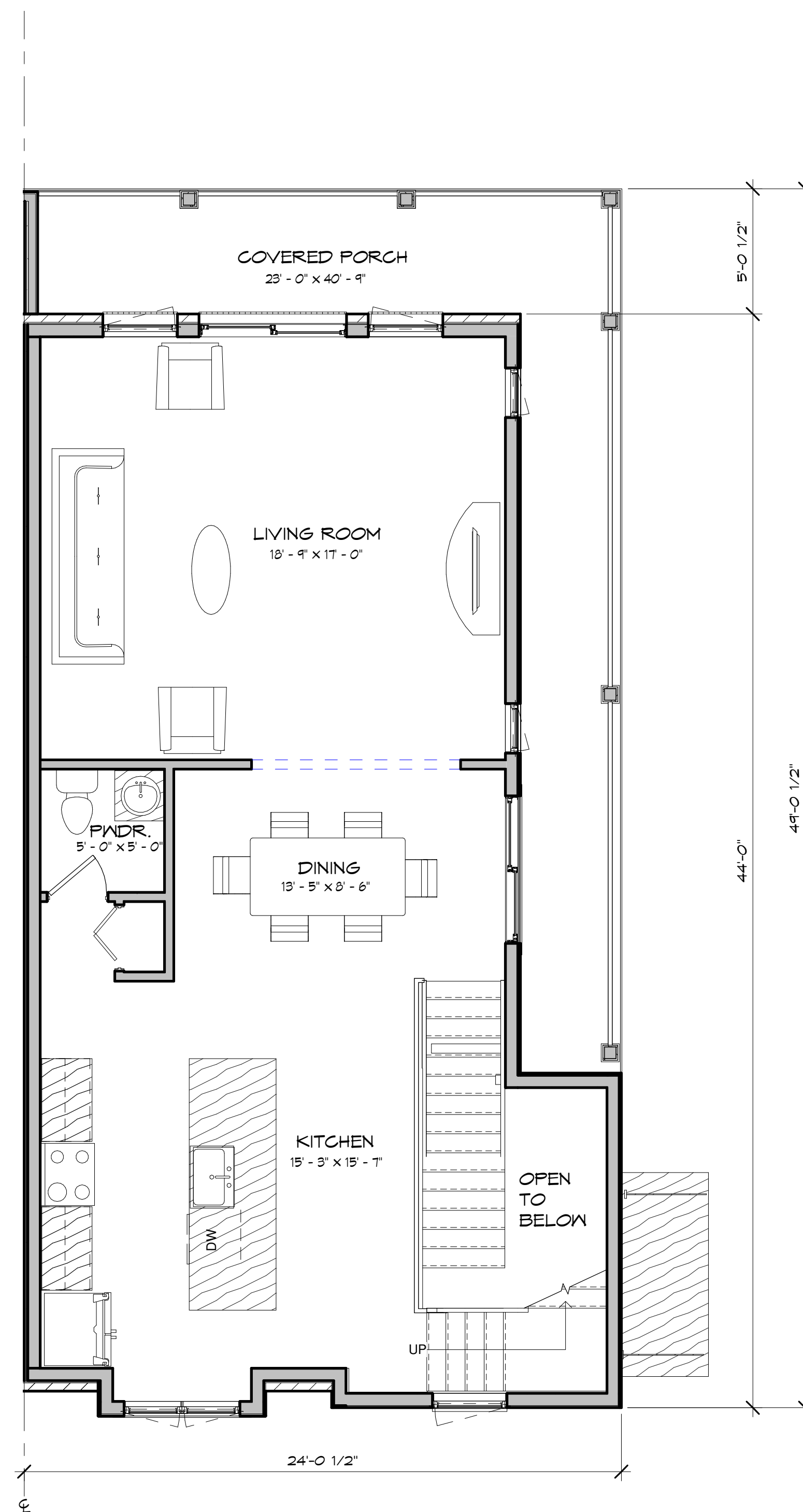
989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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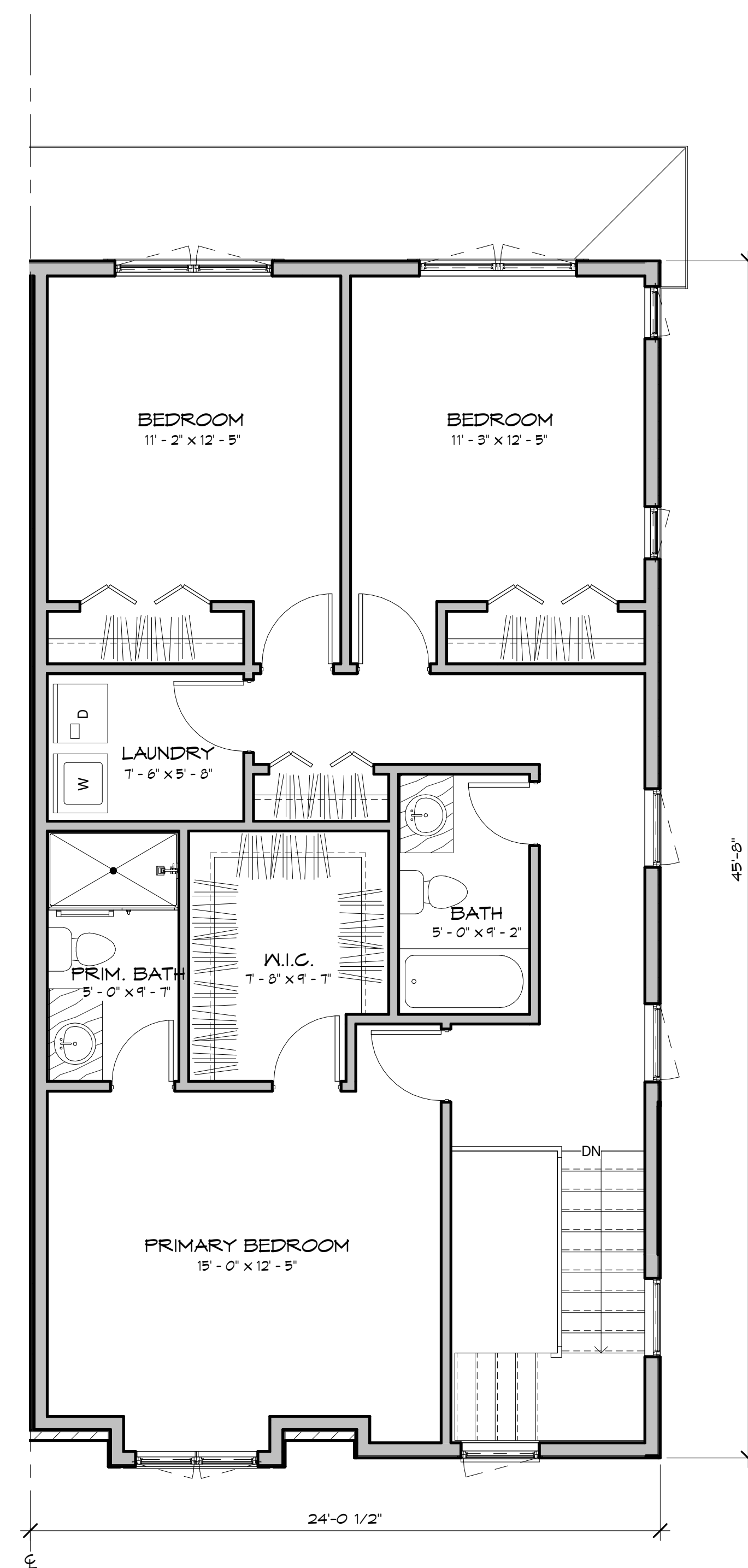
First Floor - Unit "A"

Scale: 1/4" = 1'-0"



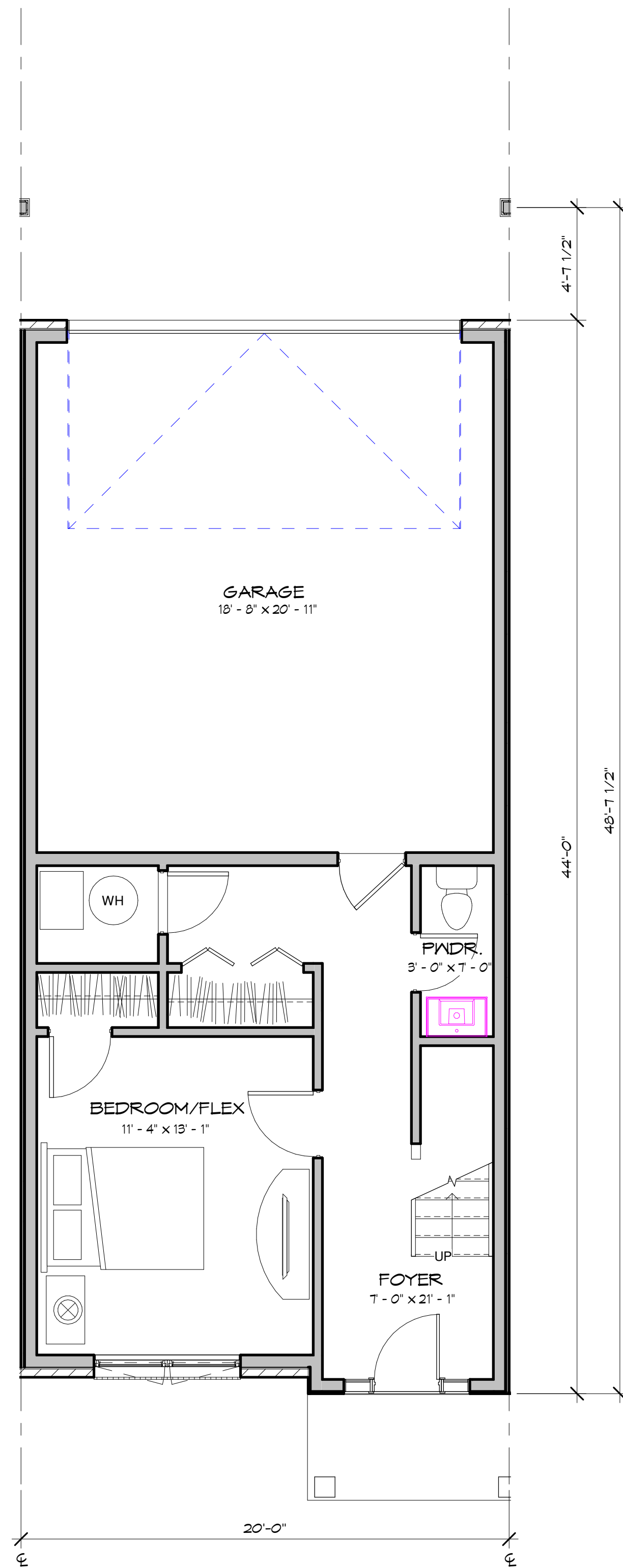
Second Floor - Unit "A"

Scale: 1/4" = 1'-0"



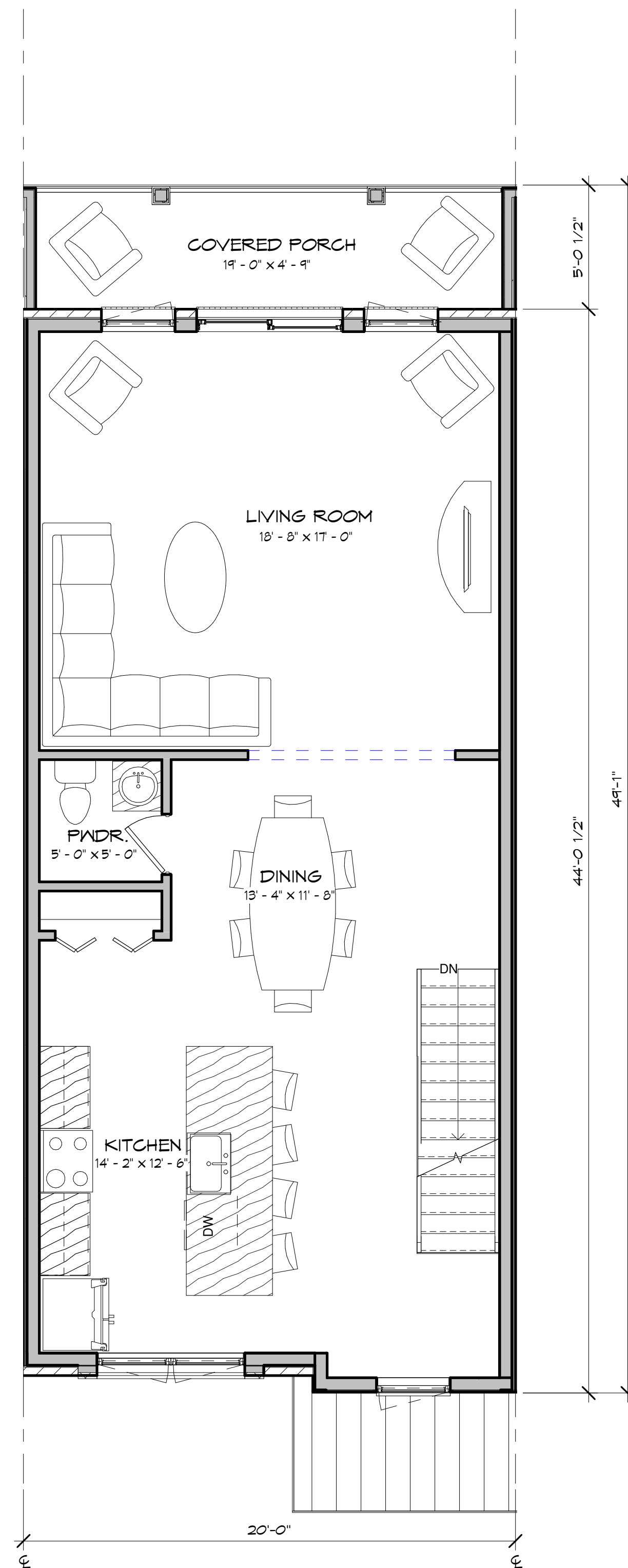
Third Floor - Unit "A"

Scale: 1/4" = 1'-0"



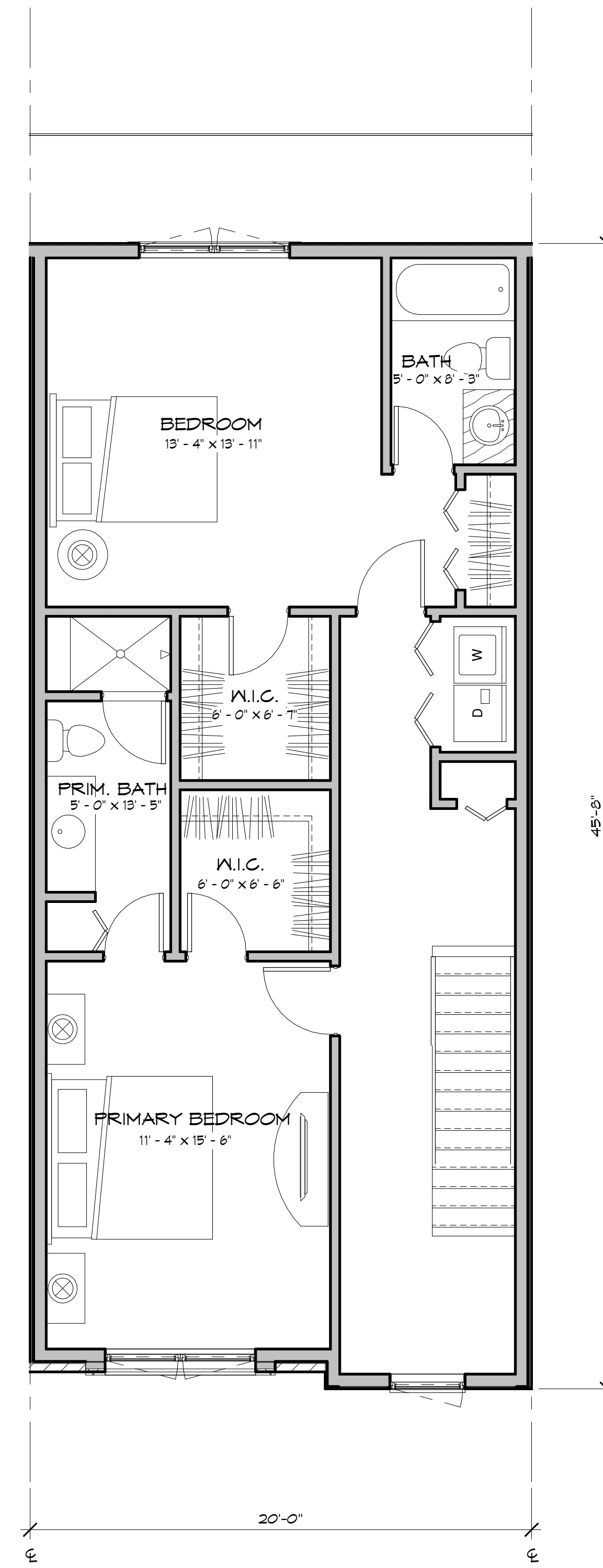
First Floor - Unit "B"

Scale: 1/4" = 1'-0"



Second Floor - Unit "B"

Scale: 1/4" = 1'-0"



Third Floor - Unit "B"

Scale: 1/4" = 1'-0"



West Elevation

Scale: 1/4" = 1'-0"



North Elevation

Scale: 1/4" = 1'-0"

