1329 / 1333 JONES DRIVE

CITY OF ANN ARBOR, WASHTENAW CO., MI 48105

SITE PLAN FOR REZONING AND CITY COUNCIL

SITE PLAN SUBMITTAL 2 - DECEMBER 20, 2024

OWNER/APPLICANT

GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
248-909-2021
ATTN: JAN DUNN

ARCHITECT

THE COLLABORATIVE ARCHITECTS
213 S. MAIN STREET, SUITE 200
ANN ARBOR, MI 48104
734-922-8002
ATTN: STEPHEN WILSON

ENGINEER/SURVEYOR/LANDSCAPE ARCH.

MIDWESTERN CONSULTING, LLC
3815 PLAZA DR.
ANN ARBOR, MI 48108
734-995-0200
ATTN: ROB WAGNER

PROJECT NARRATIVE

The proposed development consists of a two-tower apartment building with 70 apartment units, ranging from studio units to three-bedroom units, over a lower-level parking area built into the hill. The proposed building will be located on two parcels with addresses of 1329 and 1335 Jones Drive (the second of which is also addressed as 1440 Plymouth Road). The parcels will be combined, and rezoned from PUD (allowing R4D and water bottling) to R4E.

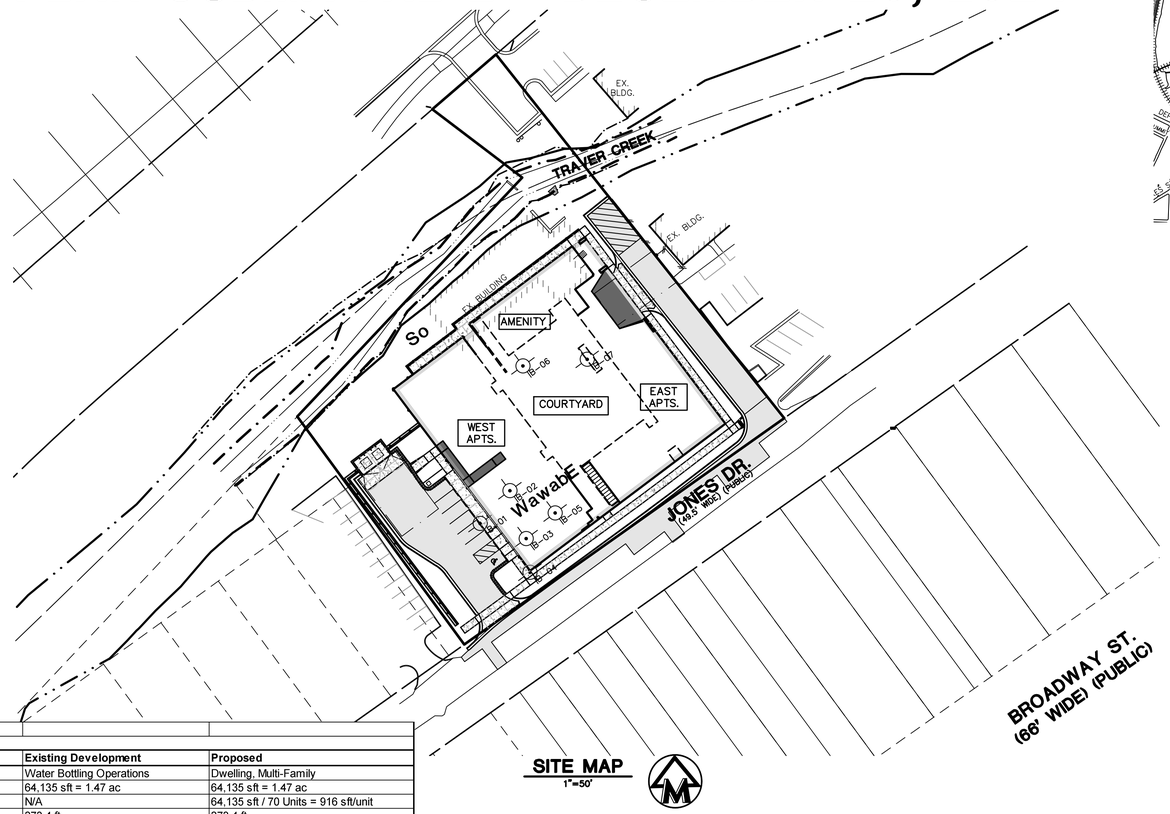
Public roadway access will be to Jones Drive, as the existing Traver Creek blocks direct access to Plymouth Road. The existing steep driveway on the east side of the site (20% grade), shared with the Brookside Apartments, will remain. A second driveway will be installed on the west side of the side to provide fire truck access, trash collection access, and general vehicle access to the property on a flatter driveway that will be more accessible in winter conditions.

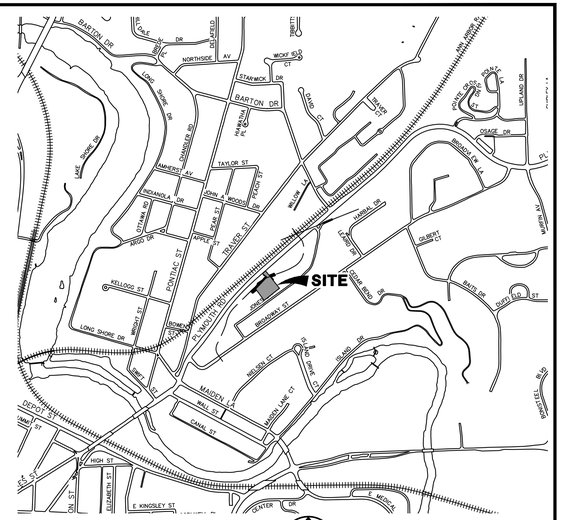
The existing site has no stormwater management system, however the proposed project will collect the stormwater across the disturbed area of the site, treat it for quality, and detain it in underground chambers to reduce the volumetric flow rate to County and City standards. Soil borings indicated clay soils throughout the site, which indicates the infeasibility of infiltration. As such, the stored volume will be increased by 20% in accordance with County and City standards. As the storm will outlet into Traver Creek, a Washtenaw County Drain, the project will be reviewed and permitted by the Washtenaw County Water Resources Commissioner.

Efforts were made to save landmark trees where possible, while landscape requirements were satisfied through attractive plantings and native plant material that complement the architecture and surrounding site. An existing building will be removed from the edge of the floodplain at the waterway buffer (technically this building removal and landscape restoration is within the 25' wetland buffer zone, but is a buffer restoration task), and native plantings will be placed to extend the wetland buffer. An EGLE permit and WCWRC permit will be required to install the stormwater outlet into the bank of Traver Creek.

Trip Generation Calculation - ITE Trip Generation Manual - 11th Edition

				Morning Peak Hour			Afternoon Peak Hour		
Land Use	ITE CODE	SIZE	WEEKDAY	IN	OUT	TOTAL	IN	OUT	TOTAL
Apartments Mid Rise	**221**	**70**	**287**	**4**	**15**	**19**	**17**	**11**	**28**
(3 - 10 floors)									
Persons Total				6	18	24	24	16	40
Persons W+T+B	(Walk + Transit + Bicycle)			1	3	4	3	2	5
Persons in Vehicle	(Total - W+T+B)			5	15	20	21	14	35
Vehicle Occupancy	(Persons in Vehicle / Vehicles)					1.05			1.25





SHEET INDEX

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Number of Units	70 Units / 125 Bedrooms Total: 3 studio + 17 1-bedroom + 45 2-bedroom + 5 3-bedroom			
SITE INFORMATION	**Existing PUD Zoning Requirement**	**R4E Zoning Requirement**	**Existing Development**	**Proposed**
Permitted Use	R4A Multi-Family Housing + Water Bottling Operations	Dwelling, Multi-Family	Water Bottling Operations	Dwelling, Multi-Family
Minimum Lot Area	21,780 sft	14,000 sft	64,135 sft = 1.47 ac	64,135 sft = 1.47 ac
Minimum Lot Area per dwelling unit	4,300 sft	580 sft	N/A	64,135 sft / 70 Units = 916 sft/unit
Minimum Lot Width	120 ft	120 ft	273.4 ft	273.4 ft
Maximum Dwelling Unit Density	10.1 units/acre	75.1 units/acre	N/A	70 units / 1.47 ac = 47.6 units/ac
Front Setback [Jones Drive]	15 ft Minimum, 40 ft Maximum	15 ft Minimum, 40 ft Maximum	79.4 ft - from Jones Drive	15.5 ft - from Jones Drive min. 20.6 ft - from Jones Drive max.
Front Setback [Plymouth Road]	15 ft Minimum, no Maximum to second front setback	15 ft Minimum, no Maximum for second front setback	99.3 ft to Plymouth Road	137.8 ft to Plymouth Road
Minimum West Side Setback	20' + 3" per each foot of building height over 35' and 1.5" for each foot of building width over 50' = 20' + 0.25' x (64.51'-35') + 0.125' x (159.1' - 50') = 41.02'	10' + 3" per each foot of building height over 35' and 1.5" for each foot of building width over 50' = 10' + 0.25' x (64.51'-35') + 0.125' x (159.1' - 50') = 31.02'	120.1 ft - West	65.4 ft - West
Minimum East Side Setback	20' + 0.25' x (42.84'-35') + 0.125' x (163.4' - 50') = 36.14'	10' + 0.25' x (42.84' - 35') + 0.125' x (163.4' - 50') = 26.14'	32.8 ft - East	30.7 ft - East
Minimum North Side Setback	20' + 0.25' x (64.51' - 35') + 0.125' x (167.8' - 50') = 42.10'	10' + 0.25' x (64.51' - 35') + 0.125' x (167.8' - 50') = 32.10'	12.3 ft - North	35.9 ft - North
Minimum Rear Setback	30' + 1.5" per each foot of building height over 35' and 1.5" for each foot of building width over 50' = 30' + 0.125' x (64.51'-35') + 0.125' x (167.8'-50') = 52.10'	30' + 1.5" per each foot of building height over 35' and 1.5" for each foot of building width over 50' = 30' + 0.125' x (64.51'-35') + 0.125' x (167.8'-50') = 52.10'	N/A - no rear lot line	N/A - no rear lot line
Maximum Building Lot Coverage	N/A	N/A	6,096 sft (9.5% of lot)	27,588 sft (43.0% of lot)
Maximum Floor Area Ratio	N/A	N/A	0.09	1.58 FAR
Maximum Impervious Lot Coverage	N/A	N/A	14,715 sft (22.9% of lot)	43,884 sft (68.4% of lot)
Average Finish Grade (AFG)	Average of highest and lowest points of all building walls, measured 5 feet from building walls (at corners for this site development)			801.56 ft [Range: 792.52 - 813.32]
Maximum Building Height	35 ft, or 45 ft with parking under 35% of building	N/A	Approx. 12 ft	Ground Level: 17.70 ft [7.86 ft below AFG] West Apts.: 54.67 ft [64.51 ft over AFG] East Apts.: 33.00 ft [42.84 ft over AFG]
Maximum Stories	N/A	N/A	1 story	6 stories - including parking level
Total Building Floor Area	N/A	N/A	6,096 sft (9.5% of lot)	28,219 sft Podium + 25,682 sft East Bldg + 47,389 sft West Bldg = 101,290 sft
Minimum Open Space	65% of Lot Area [41,688 sft min.] 300 sft per dwelling unit [21,000 sft min.]	40% of Lot Area [25,654 sft min.] 150 sft per dwelling unit [10,500 sft min.]	49,713 sft - 77.5% of site lot area	32,111 sft - 50.1% of site lot area 458 sft per dwelling unit
Vehicle Parking	N/A	N/A	Unstriped - approx. 12 spaces	66 total (7 surface + 59 garage), 0.94 spaces per unit
EV Parking Spaces	10% EV Installed [7 min.] Remainder EV Capable	10% EV Installed [7 min.] Remainder EV Capable	None	7 EV Installed, 59 EV Capable
ADA Parking Spaces Required	3 ADA spaces for 51-75 total, [min. 1 must be van]	1 ADA space required for 1-25 total, [must be van]	None	4 van spaces provided (1 exterior)
Total Bicycle Parking	1 for every 5 units [14 min.]	1 for every 5 units [14 min.]	None	38 provided [1 for every 1.84 units]
Class A Bicycle Parking	50% min. of required spaces [7 min.]	50% min. of required spaces [7 min.]	None	24 secured spaces in garage ground floor
Class C Bicycle Parking	Remainder of required spaces [7 min.]	Remainder of required spaces [7 min.]	None	14 spaces (7 hoops) in 1F courtyard

NOTES:

1. All sidewalks within the City shall be kept and maintained in good repair by the owner of the land adjacent to and abutting upon the same. Prior to the issuance of the final Certificate of Occupancy for this site, all existing sidewalks in need of repair must be repaired in accordance with City standards.
2. All work within the City of Ann Arbor covered by these plans shall be performed in complete conformance with the current City of Ann Arbor Public Services Department Standard Specifications and Details.
3. The omission of any current standard detail does not relieve the contractor from this requirement. The work shall be performed in complete conformance with the current public services standard specifications and details.
4. Sidewalks constructed in the public right-of-way shall meet all requirements and guidelines as set forth in the ADA standards for accessible design. Sidewalk and curb ramp grades will be reviewed during construction plan submittals.
5. Pavement markings disturbed due to pavement cuts or construction related activities shall be replaced as directed by Engineering. Replacement during construction of the project may be considered temporary, with final pavement marking restoration to occur at the end of the project.
6. The contractor shall take all necessary precautions to protect the existing public road pavement. Damage to the public road pavement during the course of construction may necessitate milling and resurfacing of the damaged areas prior to issuance of the Certificate of Occupancy.

1329 / 1333 JONES DRIVE

JOB No. **23022**

REVISIONS:	REV. DATE
SITE PLAN SUBMITTAL 1	05/15/24
SITE PLAN SUBMITTAL 2	12/20/24

DATE: 12/20/24
SHEET 1 OF 27
CADD: CMW
ENG: JAM
PM: RCW
TECH:
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Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

RELEASED FOR:	DATE

STATE OF MICHIGAN
JEREMY A. MATTHEI
ENGINEER
No. 53590
LICENSED PROFESSIONAL ENGINEER

JEREMY A. MATTHEI
P.E. # 62010 53590

1329 / 1333 JONES DRIVE
CITY OF ANN ARBOR REQUIRED SITE PLAN INFORMATION

UDC Required Site Plan Information

A. Required Site Plan Information

1. *Cover Sheet – The following general project information should be provided on the cover sheet of the plan set and all subsequent sheets as appropriate.*

- ***a.*** *Project name, address or location, and type of site plan.*
  1329 / 1333 Jones Drive, Ann Arbor, MI 48105; Site Plan for Rezoning and City Council Approval.
- ***b.*** *Petitioner and agent information, including name, address and contact information.*
  Petitioner: Greenspan S & B, LLC, 26645 W. 12 Mile Rd., Suite 200, Southfield, MI 48034, Attn. Jan Dunn
  Agent: Midwestern Consulting LLC, 3815 Plaza Drive, Ann Arbor, MI 48108; Ph. (734) 995-0200; Attn. Robert C. Wagner
- ***c.*** *Statement of interest in the land, including conditions for sale or purchases of parcels such as deed restrictions, reservation of land for other uses, or other conditions which may have bearing on the total land Development.*
  Petitioner is the land owner. A portion of the site includes Traver Creek, a Washtenaw County Drain under the Easement and Jurisdiction of the Washtenaw County Water Resources Commissioner.
- ***d.*** *Vicinity map identifying the location of the Site within the City, including nearest major roads and significant features such as schools, shopping centers and parks.* **See Cover Sheet.**
- ***e.*** *North indicator (pointing up or to the left) and drawing scale in bar graph form.* **Shown on all relevant sheets.**
- ***f.*** *Legal description of the Site, including total acreage of the parcel(s) and total acreage of public or private roads contained in the legal description.* **See ALTA sheet.**
- ***g.*** *Sheet index and date of plan set.* **See Cover Sheet.**
- ***h.*** *Required Statements - A brief written statement addressing the following concerns:*
  - *i) Identification of associated applications such as annexation petition, rezoning petition, PUD Zoning District petition, Special Exception Use petition, planned project modification request, landscape modification request, or variance application. Identification of special circumstances associated with the application that require additional procedures or specific approvals such as Natural Features buffer area.* **The site plan application is under the R4E zoning and the project adheres to the R4E requirements. The parcel is petitioned to be rezoned from PUD** (currently allowing for water bottling industry) **to R4E.**
  - *ii) Proposed development program, including proposed land use, improvements, Floor Area or number of Dwelling Units and bedrooms, access and circulation, off-street parking, preliminary construction phasing and estimated construction costs.* **The site has frontage on Jones Drive, and a second frontage across Traver Creek on Plymouth Road.**
    Proposed Development Summary:
    One Building: a 5-story apartment block and a 3-story apartment block over a platform parking level with building entry (6-stories total).
    71 dwelling units/126 bedrooms
    102,400 sf of floor area (including parking level)
    Building height: 64.18 feet over Average Finish Grade (AFG) of 802.22
    Storm water management: an underground chamber located under the lower parking level of the building is designed to detain the storm water runoff from the site and discharges to the side bank of Traver Creek, a Washtenaw County Drain. The site will have 12 surface parking spaces and 43 spaces on the ground floor of the building for a total of 55 spaces.
    The site will have 14 outdoor public and 24 secured indoor bicycle parking spaces, for a total of 38 spaces.
    Proposed Phasing and Probable Construction Cost: **The development will be constructed in one phase, beginning on or around 3/1/2025, with completion on or around 7/31/2026. The estimated construction cost is $26,000,000.**
  - *iii) Community Analysis*
    - *(a) Impact of proposed Development on public schools.* **The units are apartments ranging in size from studios to 3 bedrooms. The units are designed as student oriented apartments. The number of children living in the building is expected to be minimal so there will be virtually no impact on public elementary and high schools.**
    - *(b) Relationship of intended use to neighboring uses.* **The residential units will provide additional housing. The residents are likely to patronize existing restaurants, retail, and other businesses in the nearby buildings especially in the Lowertown area.**
    - *(c) Impact of adjacent uses on proposed development.* **Residents will likely patronize the businesses and institutions in the surrounding Lowertown area.**
    - *(d) Impact of proposed Development on the air and water quality, and on existing Natural Features of the Site and neighboring Sites.* **There will be no significant impact expected on air or water quality.**
    - *(e) Impact of the proposed use on historic Sites or structures which are located within an historic district or listed on the National Register of Historic Places.* **The site is not within a historic district and the existing building is not a historic structure.**
    - *(f) Natural Features General Descriptions and Impacts: A brief summary of the Natural Features (Woodlands, Wetlands, Water Courses, Landmark Trees, Steep Slopes and Endangered Species Habitat) found on the Site. A detailed report of the quality, character and health of all existing Natural Features, and identification of all proposed impacts to them.*
      Endangered Species Habitat: **All of Ann Arbor is the habitat for the Indiana Bat and the Northern Long-Eared Bat, for which all tree removals must occur between October 1 and March 31. No other endangered species are expected on the site.**
      100-Year Floodplain: **Traver Creek floodplain shown on Natural Features Plan, no work in floodplain except for removal of existing building at edge of floodplain and installation of storm outlet.**
      Landmark Trees: **Landmark trees to be removed are identified on the existing conditions plan, removal plan and within the tree inventory list. Refer to the tree inventory list and landscape plan for a summary of the tree removal impact and mitigation requirements.**
      Steep Slopes: **Slopes of approximately 20% (5H:1V) - 68% (1.5H:1V) were identified on the Site with the high side located along Jones Drive sloping down toward Traver Creek located at the northwestern side of the Site. The lowest area of the Site being Traver Creek.**
      Existing Watercourses: **Traver Creek floodplain shown on Natural Features Plan, no work in waterway except for removal of existing building at edge of floodplain and installation of storm outlet.**
      Wetlands: **Traver Creek riverine wetland shown on Natural Features Plan, no work in wetland except for removal of existing building in buffer and installation of storm outlet.**
      Woodlands: **The southwestern portion of the Site is heavily wooded. Much of this area consists of steep slope generated by construction fill identified as slag. Over time, volunteer species grew in these areas and matured many of which grew to be landmark trees as identified in the tree survey. Many species identified are invasive further identifying the Site in conjunction with the slag fill, as a disturbed site. This area was also identified as a woodland after calculating basal area which was determined to be 34.71 sf/acre.**
  - *iv) Traffic Statement: The number of vehicle trips per unit per peak hour and supporting documentation from the ITE Manual.* **A Traffic Impact Assessment is not required due to the expected peak hour trip generation being 28 trips (less than 50). See Cover Sheet for ITE Manual data..**
  - *v) Public Sidewalk Maintenance Statement* **See Cover Sheet, General Notes number 1.**
- ***i.*** *Comparison Chart of Requirements and Existing and Proposed Conditions*
  - *i) Zoning Classification.* **Existing-PUD, Proposed-R4E**
  - *ii) Lot Area.* **1.47 acres, 64,135 square feet.**
  - *iii) Total area of all Floors (measured from exterior faces of the exterior walls or from the center line of walls separating two Buildings), Floor Area and Floor Area Ratio (FAR), or Density.* **102,400 sf gross including residential, parking, leasing and amenity area.**
  - *iv) Open Space and Active Open Space.* **0.72 acres (48.8% of parcel area)**
  - *v) Required Setbacks and Yards (front, side and rear).*
    Front (Jones Drive): 21.7 feet
    Front (Plymouth Road): 137.3 feet
    Side (West): 53.0 feet
    Side (East): 43.8 feet
  - *vi) Height and stories.*
    64.18 feet, 6 stories including parking level.
  - *vii) Off-street vehicle parking, including accessible and barrier free spaces.*
    55 Total spaces (12 surface + 43 garage)
  - *viii) Bicycle parking, including class.*
    Class A: 14 spaces provided
    Class C: 24 spaces provided
    Total Bicycle Parking: 38 spaces provided.
  - *ix) Notation of variances granted or proposed, planned project modifications approved or proposed.* **N/A.**

2. *Existing Conditions Plan– Drawings and written descriptions of the existing conditions of the Site must be included on the plans, including the following:*

- ***a.*** *ALTA Land Survey.* **See ALTA Survey and Existing Conditions Plan.**
  - *i) Exception: Where there are no existing public utilities on the Site, the Planning Manager may waive the requirement to provide an ALTA Land Survey for Site Plans for Administrative Approval or when the combination of existing conditions and proposed Development are so minor that preparing an ALTA Land Survey would be a significant financial hardship to the Applicant. In those cases, an existing conditions plan illustrating the boundaries of the Site, location of all structures and improvements, and any easements, prepared by a professional land surveyor must be provided.* N/A.
- ***b.*** *Existing and proposed contours extending 50 feet beyond the Site at a minimum interval of two feet.* **See ALTA Survey and Existing Conditions Plan, and Grading Plan.**
- ***c.*** *If new City public sanitary sewer, water mains, Storm Water Management System, or streets are proposed in conjunction with a site plan, the plans must be referenced to the Ann Arbor Geodetic Reference System.* **The survey is referenced to the AAGRS (State Plane Coordinates, Michigan South Zone (2113).**

3. *Dimensional Layout Plan – Drawings and written descriptions of the proposed Development must be provided on the plans, demonstrating compliance with all applicable Development standards such as building area, height and placement, off-street parking, streets and access, including the following:* **See Dimensional Layout Plan.**

- ***a.*** *Existing and proposed Lot lines.* **Shown.**
- ***b.*** *Minimum and maximum Required Setback Lines, including Established Front Building Line and required increases to the normal minimum side and rear setbacks, if applicable; existing and proposed Front, Side and Rear Yards.* **Shown.**
- ***c.*** *Existing and proposed Buildings.* **See ALTA Survey and Existing Conditions Plan for existing buildings. See Dimensional Layout Plan for proposed building.**
- ***d.*** *Vehicle Parking Spaces, aisles and Driveways. Identify any "no parking" areas or fire lanes and indicate any proposed signage.* **See Dimensional Layout Plan.**
- ***e.*** *Bicycle parking, including detail of facilities.* **See Dimensional Layout Plan and Architectural Plans, and Civil Details sheet.**
- ***f.*** *Curb Cuts, drive Approaches and curb radii dimensions, including all Curb Cuts on the opposite side of the street from the Site. Dimension of all Fire Department access roads or lanes, if applicable, including width at hydrant, dead end lengths, turn-around location, turning radii, etc.* **See Dimensional Layout Plan, Utility Plan, and Fire Protection Plan.**
- ***g.*** *Open Space and Active Open Space.* **0.72 acres of open space, 48.8% of site area**
- ***h.*** *Natural features buffer.* **See Natural Features Plan and Dimensional Layout Plan.**
- ***i.*** *Conflicting land use buffer.* **See Dimensional Layout Plan.**
- ***j.*** *Solid waste enclosure, including dimensioned detail.* **See Solid Waste Management Plan and Site Details Sheet**
- ***k.*** *Perspective sketch of building showing Streetwall Height and Offset, if applicable.* **See Architectural Plans.**

4. *Natural Features Plan – Drawings and written descriptions identifying all Natural Features on the Site, proposed protection measures for avoiding disturbance to existing Natural Features, alternatives analysis, and proposed mitigation for any disturbed or removed Natural Features to determine compliance with applicable Development standards must be included on the plan, including the following:* See Natural Features Impact Statement on ALTA Survey and Existing Conditions Plan.

- ***a.*** *Accurate location and description of all Natural Features within the Limits of Soil Disturbance and in an area extending 50 feet beyond the Limits of Soil Disturbance, including:*
  - *i) Limits of Soil Disturbance.* **See Grading Plan.**
  - *ii) Boundary and description of any Endangered Species Habitat.* **N/A.**
  - *iii) Boundary and elevation of any 100-year floodplain.* **See Natural Features Plan and Dimensional Layout Plan.**
  - *iv) Location, species and Critical Root Zone and condition of Landmark Trees.* **See Natural Features Plan.**
  - *v) Location of all Steep Slopes and a cross section through the Site showing the proposed activity in relationship to the topography.* **See Natural Features Plan**
  - *vi) Existing and proposed Watercourses showing depths, normal water levels, shore gradients, type of bank retention and shore vegetation.* **See Natural Features Plan**
  - *vii) Boundary and character of all Wetlands.* **See Natural Features Plan**
- ***b.*** *Boundary and basal area of any Woodland, with location, species and DBH of all trees six inches DBH or greater within the Woodland area.* **See Natural Features Plan**
- ***c.*** *Location and extent of required Natural Features buffer. Identification of any temporary or permanent activity (i.e. impacts or disturbance) within the Natural Features buffer.* **See Natural Features Plan, Site Removals Plan, Dimensional Layout Plan, Grading Plan, and Utility Plan.**
- ***d.*** *When any activity within the Natural Features buffer is proposed, a written justification responding to each general criteria for determining a proposed activity in the Natural Features buffer is in the public interest.* **See Note 2 on Sheet 7.**
- ***e.*** *Protection measures for those existing Natural Features proposed to be protected as part of the Development, including protections from the construction of the Development.* **See Natural Features Plan and Soil Erosion and Sedimentation Control Plan**
- ***f.*** *Identification of all Natural Features proposed to be impacted, disturbed, or removed by the Development, including the construction of the Development.* **Refer to Natural Features Plan**
- ***g.*** *Alternatives Analysis: When any Natural Features are proposed to be removed or disturbed, drawings and descriptions of at least two alternative plans that were prepared and considered but are not proposed which demonstrate and justify that the proposed Development limits the disturbance or removal of Natural Features on and adjacent to the Site to the minimum necessary to reasonably accomplish the permitted use.* **See Alternatives Analysis Plan**
- ***h.*** *Proposed mitigation measures: When any Natural Features are proposed to be removed or disturbed, proposed mitigation measures must be provided including:* **See Landscape Plans**
- ***i.*** *Written description of the mitigation program, identifying the type and appropriate quantity (i.e. basal area, square feet, caliper inches) of Natural Features removed or disturbed and the appropriate quantity of the mitigation proposed.* **See Landscape Plans**
- ***j.*** *Replacement calculations.* **See Landscape Plans**
- ***k.*** *Location of proposed mitigation plantings.* **See Landscape Plans**
- ***l.*** *Chart listing the proposed mitigation plantings, including botanical and common names, caliper sizes, root type and height.* **See Landscape Plans**
- ***m.*** *Timing schedule for implementation of mitigation measures.* **See Landscape Plans**
- ***n.*** *Notation and description of any proposed alternative mitigation measures.* **See Alternatives Analysis Plan**

5. *Natural Features Overlay Plan – A drawing including the dimensional layout and the existing Natural Features on Site.* **See Natural Features Overlay Plan**

6. *Landscape Plan – Drawings and written descriptions of proposed landscaping, screening and buffers demonstrating compliance with applicable Development standards such as interior landscaping of Vehicular Use Areas, Right-of-Way screening, conflicting land use buffers, and Natural Features mitigation in order to determine compliance with applicable Development standards must be provided on the plans, including the following:*

- ***a.*** *Location, size and species of existing trees and vegetation, and Natural Features.* **See Natural Features Plan**
- ***b.*** *Location of light poles, refuse containers and enclosures, mechanical equipment and hydrants.* **See Dimensional Layout Plan, Utility Plan, Landscape Plan, and Architectural Plans.**
- ***c.*** *Limits of Vehicular Use Area and notation of its size in square feet.* **See Landscape Plan.**
- ***d.*** *Proposed locations of required landscaping, screening and buffers, street trees and plantings.* **See Landscape Plan.**
- ***e.*** *Table identifying Vehicular Use Area, interior landscape islands, Right-of-Way screening, conflicting land use buffer, and street tree planting requirements and proposed plantings and areas to satisfy requirements.* **See Landscape Plan**
- ***f.*** *Proposed plant list, including caliper sizes, root type, height of material, botanical and common name, type and amount of mulch, ground cover and grasses.* **See Landscape Plan.**
- ***g.*** *Notation of requested modifications if any.* **N/A.**
- ***h.*** *Planting and staking details in accordance with the standards established by the PSA Administrator.* **See Landscape Details sheet and SESC Details sheet.**
- ***i.*** *Specification for treatment of compacted soil on the entire Site.* **See Landscape Plan, Landscape Notes.**
- ***j.*** *Specification for planting media in landscape areas.* **See Landscape Plan, Landscape Notes.**
- ***k.*** *Irrigation plan or water outlets (hose bibs).* **See Landscape Plan, Landscape Notes. See also Architectural Plans.**
- ***l.*** *Landscape maintenance program, including a statement that all diseased, damaged, or dead material shall be replaced in accordance with this Code by the end of the following planting season as a continuing obligation for the duration of the site plan.* **See Landscape Plan, Maintenance Notes.**
- ***m.*** *Identification of snow storage areas, including a statement that snow shall not be pushed onto interior landscape islands unless designed for snow storage.* **See Landscape Plans**
- ***n.*** *Berms, retaining walls, screen walls, fences, tree wells to preserve existing trees, culverts to maintain natural drainage patterns, or any other construction details necessary to resolve specific Site conditions.* **See Architectural Plans.**

7. *Utility Plan – Drawings and written descriptions of the existing and proposed public utilities serving the Site must be provided on the plans, including the following:*

- ***a.*** *Location and size of existing and proposed public water, sanitary sewer and storm sewer mains and leads. Note invert elevations of storm and sanitary mains.* **See ALTA Survey and Existing Conditions Plan, and Utility Plan.**
- ***b.*** *Location of existing and proposed fire hydrants. Indicate a 250-foot or 350-foot radius, as appropriate for the type of proposed Development, around each hydrant. Show and dimension hose lay to any external portion of a Structure via an approved fire route from any hydrant or combination of hydrants. Location of fire department connections (FDC) to Buildings. Dimension distance of the hose lay from the FDC to the nearest hydrant via an approved fire route (provide dimension following an actual hose laying route). Location of Knox Box, if applicable. Include a separate Fire Protection and Access Plan sheet if necessary for clarity.* **See Fire Protection Plan.**
- ***c.*** *Location of existing Public Utility easements, including liber and page number.* **See ALTA Survey and Existing Conditions Plan.**
- ***d.*** *Location and dimension of proposed Public Easements. Notation that legal descriptions of proposed easements will be provided with construction drawings and engineering plan submittals as required.* **See Utility Plan.**
- ***e.*** *Sanitary sewer flow mitigation calculations.* **See Utility Plan.**
- ***f.*** *Location and notation of firewalls within existing or proposed Buildings, or notation that none are existing or proposed.* **See Architectural Floor Plans.**

8. *Grading and Soil Erosion Control and Storm Water Management Plan - Drawings and written descriptions demonstrating compliance with the applicable Development standards for Grading and soil Erosion controls must be provided on the plans, including the following:*

- ***a.*** *Vicinity map showing location of Site and all adjacent properties within 500 feet of the Site boundaries showing relationship to any Watercourse.* **See Vicinity Map on the Cover Sheet.**
- ***b.*** *Soil investigation report, survey or profile of data regarding the nature, soil type, distribution, erodibility, and supporting ability of existing soils or rock on the Site in accordance with the United States Department of Agriculture soil survey standards.* **Draft soil boring logs are included in this plan set. The full geotechnical report submitted separately when completed.**
- ***c.*** *Existing and proposed topography at a maximum of two-foot contour intervals, elevations or similar slope descriptions, extending at least 50 feet beyond Site boundary.* **See Natural Features Plan and Grading Plan.**
- ***d.*** *Location of any existing Structure or Natural Feature on the Site and on land extending at least 50 feet beyond the Site boundary lines.* **See ALTA Survey and Existing Conditions Plan, Natural Features Plans, and Grading Plan.**
- ***e.*** *Location of proposed Structures or Development on the Site including physical limits of each proposed Earth Change and all proposed temporary and permanent soil Erosion and Sedimentation Control Measures.* **See Grading Plan and Soil Erosion Control Plan.**
- ***f.*** *Plans, section and construction –quality details of all soil Erosion and Sedimentation Control Measures, existing and proposed on-site drainage and dewatering facilities, retaining walls, cribbing, planting, anti-Erosion devices or other protective devices to be constructed in connection with, or as part of, the proposed work.* **See Soil Erosion Control Plan details. Dewatering of the site is not required.**
- ***g.*** *Estimated total cost of the required controls during construction, including dust emission control.* **See Soil Erosion Control Plan, Soil Erosion Control Notes, number 9.**
- ***h.*** *Estimated total cost of protecting all exposed oil surfaces from Erosion should construction discontinue.* **See Soil Erosion Control Plan, Soil Erosion Control Notes, number 10.**
- ***i.*** *Estimate of the quantity of excavation and Fill involved.* **See Soil Erosion Control Plan, Soil Erosion Control Notes, number 13.**
- ***j.*** *Amount of impervious area existing and proposed, and square footage of impervious area reconfigured to accommodate new improvements.* **Existing: 19,975 sf / 31.1%; proposed: 46,335 sf / 72.2%.** *If a Storm Water Management System is required, computations and design of the Storm Water Management System, such as:* **See Proposed Stormwater Plan and Proposed Detention Calculations.**
  - *i) Calculations used to derive the run-off coefficients.* **See Proposed Detention Calculations, W1.**
  - *ii) Map showing the drainage area and land tributary to the Site and estimated runoff of the area served by any drain.* **See Proposed Stormwater Plan.**
  - *iii) Required storage volume calculations, including first flush, bankfull, and 100-year storm events.* **See Proposed Detention Calculations, W2-W13.**
  - *iv) Calculations for the provided/proposed storage facility.* **See Proposed Detention Calculations.**
  - *v) Required and proposed release rate calculations.*
    See Proposed Detention Calculations.
  - *vi) A plan for the continued maintenance of the permanent Storm Water Management System.* **See Soil Erosion Control Plan.**
  - *vii) Any other pertinent calculations as determined necessary by the PSA Administrator.* **To be provided if required.**
  - *viii) If an alternative method of storm water detention is proposed, a written description of the alternative method of storm water detention and a written explanation as to why the proposed alternative conforms to the Development standards of this Code.* **N/A.**
- ***l.*** *Timing and construction sequence of each proposed Earth Change, including: installation of temporary and permanent soil Erosion and Sedimentation Control Measures, striping and Clearing, rough Grading, installation and Stabilization of Storm Water Management Systems, construction of utilities, roads, infrastructure, and Buildings, final Grading and landscaping, and removal of temporary soil Erosion and Sedimentation Control Measures; identify all proposed phasing consistent with the approved site plan or final preliminary plat.* **See SESC Detail Sheet: Construction Sequence.**
- ***m.*** *A program proposal for the continued maintenance of all permanent soil Erosion and Sedimentation Control Measures that remain after Project Completion, including: designation of the person or party responsible for the maintenance; maintenance responsibilities shall become part of any sales or exchange agreement for the land on which the permanent soil Erosion and Sedimentation Control Measures are located.* **See SESC Detail Sheet, Maintenance Program for Soil Erosion Controls.**
- ***n.*** *Other information or data as may be required to demonstrate compliance, such as a soil Erosion control statement including:* **N/A.**
  - ***i)*** *Consideration of alternative actions with evaluation of each.* **N/A.**
  - ***ii)*** *Description of probable adverse environmental effects that cannot be avoided.* **N/A.**
  - ***iii)*** *Identification of any negative impact to Natural Features, including Woody Plants.* **N/A.**
  - *iv) Analysis of primary and secondary consequences of short-term uses of the environment in relation to the maintenance and enhancement of long-term productivity. Remedial, protective and mitigation measures are to be developed for any environmentally detrimental aspect.* **N/A.**
  - ***v)*** *If determined necessary by the Code Official, a hydrological study may be required where the Clearing, Grading, or addition of Impervious Surface is proposed within a floodplain not regulated by the MDEQ or unmapped flood prone areas or any lake, pond, Watercourse, or Wetlands. The study shall follow the format used by the MDEQ for hydraulic reports and shall demonstrate that the proposed activity complies with the review standards of this Code.* **N/A.**

9. *Massing and Architectural Plans – Drawings and written descriptions of the massing, architectural design and details, and façade materials of proposed Buildings must be provided on the plans, including:*

- ***a.*** *Dimensioned floor plans of each building Floor identifying areas excluded from Floor Area and excluded from FAR calculations.* **See Architectural Plans.**
- ***b.*** *Vertical sections through the Site showing existing and proposed elevations.* **See Architectural Plans.**
- ***c.*** *Dimensioned architectural design and details with labeled materials.* **See Architectural Plans.**
- ***d.*** *Perspective renderings of the proposed Development.* **See Architectural Plans.**

10. *Photometric Plan – Drawings and written descriptions of proposed lighting demonstrating compliance with the applicable Development standards, including:* **Provided.**

- ***a.*** *Location, type and details of proposed lighting fixtures.* **Light pole and wall-mount light locations are shown on the Dimensional Layout Plan, Utility Plan and Landscape Plan.**
- ***b.*** *Photometric diagram showing predicted maintained lighting levels of the proposed lighting fixtures.* **Provided**

11. *Traffic Impact Analysis – For proposed Developments that will generate more than three vehicle trips per unit per peak hour or 50 vehicle trips per peak hour, a traffic impact traffic impact analysis must be provided including the following:* **A Traffic Impact Assessment is not required, due to the ITE Trip-Generation tables indicating 28 trips in the peak hour (less than 50).**

- ***a.*** *Existing traffic volumes passing on all streets abutting the proposed Development during the peak hour. Traffic from other new and proposed Developments in the area should be considered.*
- ***b.*** *Existing peak hour turning movements of vehicular traffic at all public street intersections within 200 feet of the proposed Development, or those intersections that may be impacted by the proposed Development.*
- ***c.*** *Projected peak our generation rate and peak hours of generation for the proposed Development.*
- ***d.*** *Projected peak hour traffic movements as a result of the establishment of the proposed facility.*
- ***e.*** *A capacity analysis for impacted intersections.*
- ***f.*** *A statement of the total impact the projected generation will have on the existing level of service as determined and certified by a registered engineer.*
- ***g.*** *A sketch plan showing all existing Driveways to public streets within 200 feet of the proposed Development and all on-street parking or loading areas.*
- ***h.*** *Proposed Site access Driveways with a determination if a deceleration lane or taper is necessary based on current City warrant analysis standards, a determination if a left-turn by-pass lane is necessary based on a warrant analysis, and a sight distance study at the Site access Driveway.*
- ***i.*** *A pedestrian circulation plan showing all possible points of conflict between motorized traffic and pedestrian/bicycle traffic on public streets and sidewalks within 200 feet of the proposed Development, or those intersections that may be impacted by the proposed Development.*
- ***j.*** *A gap study for pedestrian or vehicular traffic may be required at non-signalized locations that may be impacted by the proposed Development. The traffic and/or parking impact analysis shall be reviewed by the Department of Transportation for completeness and accuracy. The analysis shall include a determination of the service volume and capacity of adjacent streets including the traffic from the new development. The methodology to be employed in determining street capacities shall conform to the 1985 edition of the Highway Capacity Manual, Special Report Number 209, or the latest revision thereof. Proposals that will contribute traffic to streets or intersections that are or will be as a result of this proposal at a level of Service D, E, or F as defined in the Highway Capacity Manual may be denied by Commission and Council until such time as necessary street or traffic improvements are scheduled for construction.*

MIDWESTERN CONSULTING
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Wireless Communications • Transportation • Landfill Services

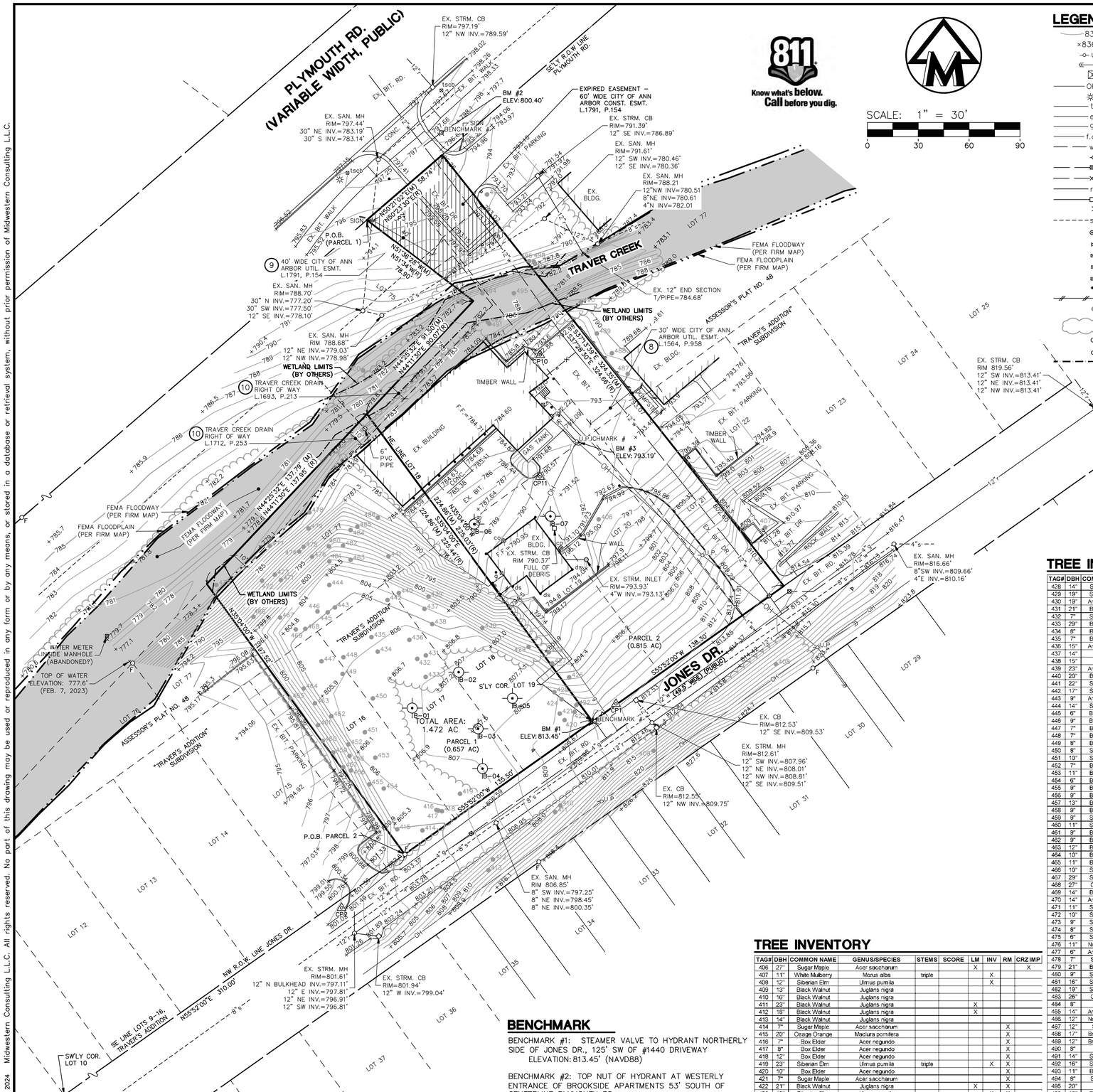
CLIENT
GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE
SITE PLAN FOR REZONING AND CITY COUNCIL
SITE DEVELOPMENT INFORMATION

2

DATE: 12/20/24
SHEET 2 OF 27
CADD: KJV
ENG: JAM
PM: ROW
TECH:
23022CV02
PB

JOB No. 23022
REVISIONS:
REV. DATE



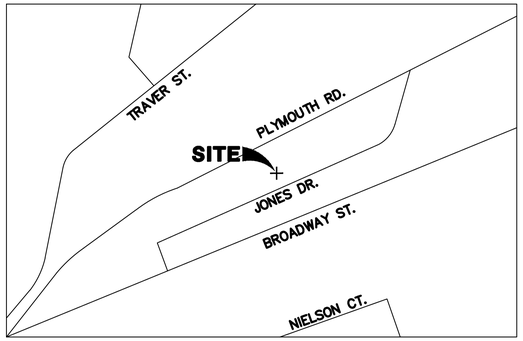
811 Know what's below. Call before you dig.

SCALE: 1" = 30'

0 30 60 90

LEGEND

838	EXIST. CONTOUR
×836.2	EXIST. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
	GUY WIRE
	ELEC. TRANSFORMER
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
	EXIST. HYDRANT
	EXIST. GATE VALVE IN BOX
	EXIST. CURB STOP & BOX
r	EXIST. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	END SECTION
s	EXIST. SANITARY SEWER
CO	EXIST. CLEANOUT
	SIGN
e	ELECTRIC METER
g	GAS METER
tscb	TRAFFIC SIGNAL CONTROL BOX
	POST
	FENCE
	SINGLE TREE
	TREE OR BRUSH LIMIT
O F	FOUND IRON PIPE
O FIR	FOUND IRON ROD
	EX. WETLAND LIMITS



VICINITY MAP
SCALE : NTS

NOTES

1) THIS SURVEY WAS PREPARED USING ATA/ABSOLUTE TITLE AGENCY TITLE, FILE NO. 81-22860415-ANN, WITH AN EFFECTIVE DATE OF DECEMBER 9, 2022.

2) THE LEGAL DESCRIPTION DESCRIBES THE SAME PROPERTY AS INSURED IN THE TITLE COMMITMENT AND ANY EXCEPTIONS HAVE BEEN NOTED HEREIN.

3) SAID DESCRIBED PROPERTY IS LOCATED WITHIN A 100-YEAR FLOOD PLAIN ZONE PER FLOOD INSURANCE RATE MAP NO. 26161C0261E, WITH AN EFFECTIVE DATE OF APRIL 3, 2012, FOR COMMUNITY NUMBER 260213, IN WASHTENAW COUNTY, STATE OF MICHIGAN, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED.

4) WETLAND LIMITS PROVIDED BY CLIENT SUBCONSULTANT, MARX WETLANDS, LLC., DRAWING, SKETCH AND REPORT DATED MARCH 23, 2023.

5) SURVEY COORDINATES MATCH THE AAGRS MICHIGAN STATE PLANE SYSTEM, NAD 83, MICHIGAN SOUTH ZONE, GEOID 12A, UNITS OF INTERNATIONAL FEET.

LEGAL DESCRIPTION

(PER ATA/ABSOLUTE TITLE AGENCY, FILE NO. 81-22860415-ANN, COMMITMENT DATE: DECEMBER 9, 2022)

The Land is described as follows: Situated in the City of Ann Arbor, County of Washtenaw, State of Michigan.

Parcel 1
Beginning at an iron pipe in the Southeasterly line of Plymouth Road marking the corner between Lot 75 and Lot 77 of Assessor's Plat No. 48 in the City of Ann Arbor, as recorded in Liber 16 of Plats, Page 55, Washtenaw County Records; thence N 50°23'30"E 58.74 feet along the Southeasterly line of Plymouth Road to an iron pipe; thence S 37°28'30"E 324.66 feet to an iron pipe on the Northwesterly line of Jones Drive; thence S 55°52'W 138.30 feet along the Northwesterly line of Jones Drive to the Southerly corner of Lot 19 of Traver's Addition, as recorded in Liber L of Deeds, Page 36, Washtenaw County Records; thence N 35°04'W 225.03 feet lying in the center of Traver Creek; thence N44°11'30"E 90.07 feet along the line between said Lot 75 and said Lot 77 to an iron pipe; thence N 51°34'W 78.9 feet along the line between said Lot 75 and said Lot 77 to the Place of Beginning, being Lot 19, Lot 20, and part of Lot 21 of said Traver's Addition, and part of Lot 77 of said Assessor's Plat No. 48. Together with the privilege of using all the water on the land now or formerly owned by Cooper lying Eastwardly of the Railroad Springs, so-called. Also together with privilege of entering upon said Cooper's land and fixing the reservoir thereon and keeping it in good repair and doing such other work as may be necessary, which rights are evidenced by a Warranty Deed recorded at Liber 372 of Deeds, Page 249, Washtenaw County Records. Also together with all other property rights or easements of whatsoever nature, reserved by or granted to the grantors herein, which affect and are applicable to the water rights and water pipeline, specifically including, but not limited to, those rights reserved in deeds recorded at Liber 362, Page 467, and Liber 384, Page 383, Washtenaw County Records.

Parcel 2
Commencing at the Southwesterly corner of Lot 10 of Traver's Addition to the City of Ann Arbor, as recorded in Liber L of Deeds, Page 36, Washtenaw County Records; thence N 55°52'E 310.00 feet along the Southeast line of Lots 9 through 16 of said subdivision and the Northwest line of Jones Drive, for a Place of Beginning; thence N 35°04'W 197.52 feet; thence N 44°11'30"E 137.95 feet along the Southeast line of land belonging to the City of Ann Arbor; thence S 35°04'E 225.44 feet along the Northeast line of Lot 18 of said subdivision and the extension of said line; thence S 55°52'W 135.50 feet along the Southeast line of Lots 16 through 18 of said subdivision and the Northwest line of Jones Drive to the Place of Beginning, being a part of Lot 16, and all Lots 17 and 18 of said Traver's Addition, also being part of Lot 77 of Assessor's Plat No. 48, as recorded in Liber 16 of Plats, Pages 55, 56, and 57, Washtenaw County Records.

EXCEPTIONS

9. Easement to City of Ann Arbor recorded in Liber 1564, Page 958, and Liber 1791, Page 154. (PLOTTED)

10. Release of Right of Way vested in Traver Creek Drain by instrument recorded in Liber 1693, Page 213, and the existing natural drainage system evidenced by Declaration of Taking recorded in Liber 1712, Page 255. (PLOTTED)

11. Rights, if any, of the United States government, the State of Michigan, any other governmental entity, riparian owners, the public or private persons existing in or with respect to the present and past bed, banks, bottomland and waters of Traver Creek. (NOT PLOTTED)

13. Arbor Springs Revised Final Phase PUD Site Development Agreement with the City of Ann Arbor, as recorded in Liber 3043, Page 940. (NOT PLOTTABLE)

SURVEYORS CERTIFICATE

To: Greenspan Brothers Management Company, LLC, a Michigan limited liability company; ATA / Absolute Title Agency; and Stewart Title Guaranty 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 none of Items of Table A thereof. The fieldwork was completed on February 20, 2023.

MIDWESTERN CONSULTING, LLC.

By:
Mark Vander Veen, P.S. No. 4001056788

Date: _____

TREE INVENTORY

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV	RM	CRZ IMP
406	27"	Sugar Maple	Acer saccharum			X			X
407	11"	White Mulberry	Morus alba	triple			X		
408	12"	Siberian Elm	Ulmus pumila				X		
409	13"	Black Walnut	Juglans nigra						
410	16"	Black Walnut	Juglans nigra						
411	23"	Black Walnut	Juglans nigra			X			
412	18"	Black Walnut	Juglans nigra			X			
413	14"	Black Walnut	Juglans nigra						
414	7"	Sugar Maple	Acer saccharum					X	
415	20"	Osage Orange	Maclura pomifera					X	
416	7"	Box Elder	Acer negundo					X	
417	8"	Box Elder	Acer negundo					X	
418	12"	Box Elder	Acer negundo					X	
419	23"	Siberian Elm	Ulmus pumila	triple			X	X	
420	10"	Box Elder	Acer negundo					X	
421	7"	Sugar Maple	Acer saccharum					X	
422	21"	Black Walnut	Juglans nigra			X		X	
423	18"	Siberian Elm	Ulmus pumila				X	X	
424	10"	American Elm	Ulmus americana					X	
425	15"	American Elm	Ulmus americana					X	
426	10"	Sugar Maple	Acer saccharum					X	
427	24"	Cottonwood	Populus deltoides			X		X	

TREE INVENTORY (cont.)

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV	RM	CRZ IMP
428	14"	Sugar Maple	Acer saccharum					X	
429	19"	Siberian Elm	Ulmus pumila				X	X	
430	19"	American Elm	Ulmus americana			X		X	
431	21"	Black Locust	Robinia pseudoacacia				X	X	
432	7"	Siberian Elm	Ulmus pumila				X	X	
433	29"	Black Locust	Robinia pseudoacacia				X	X	
434	8"	Black Locust	Robinia pseudoacacia				X	X	
435	7"	Black Locust	Robinia pseudoacacia				X	X	
436	15"	American Elm	Ulmus americana					X	
437	14"	Box Elder	Acer negundo					X	
438	15"	Box Elder	Acer negundo					X	
439	23"	American Elm	Ulmus americana			X		X	
440	20"	Black Locust	Robinia pseudoacacia				X	X	
441	22"	Siberian Elm	Ulmus pumila				X	X	
442	17"	Siberian Elm	Ulmus pumila				X	X	
443	9"	American Elm	Ulmus americana					X	
444	14"	Siberian Elm	Ulmus pumila				X	X	
445	6"	Black Walnut	Juglans nigra					X	
446	9"	Black Walnut	Juglans nigra					X	
447	7"	Black Locust	Robinia pseudoacacia				X	X	
448	7"	Black Locust	Robinia pseudoacacia				X	X	
449	8"	Black Locust	Robinia pseudoacacia				X	X	
450	8"	Siberian Elm	Ulmus pumila				X	X	
451	10"	Siberian Elm	Ulmus pumila				X	X	
452	7"	Black Locust	Robinia pseudoacacia				X	X	
453	11"	Black Locust	Robinia pseudoacacia				X	X	
454	6"	Black Locust	Robinia pseudoacacia				X	X	
455	9"	Black Locust	Robinia pseudoacacia				X	X	
456	9"	Black Locust	Robinia pseudoacacia				X	X	
457	13"	Black Locust	Robinia pseudoacacia				X	X	
458	9"	Black Locust	Robinia pseudoacacia				X	X	
459	9"	Siberian Elm	Ulmus pumila				X	X	
460	11"	Siberian Elm	Ulmus pumila				X	X	
461	9"	Black Locust	Robinia pseudoacacia	twin			X	X	
462	9"	Black Locust	Robinia pseudoacacia				X	X	
463	12"	Black Locust	Robinia pseudoacacia				X	X	
464	10"	Black Locust	Robinia pseudoacacia				X	X	
465	11"	Black Locust	Robinia pseudoacacia				X	X	
466	10"	Siberian Elm	Ulmus pumila				X		
467	29"	Siberian Elm	Ulmus pumila				X	X	
468	27"	Cottonwood	Populus deltoides			X		X	
469	14"	Black Locust	Robinia pseudoacacia				X	X	
470	14"	American Elm	Ulmus americana						
471	11"	Siberian Elm	Ulmus pumila				X		
472	10"	Siberian Elm	Ulmus pumila				X		
473	9"	Siberian Elm	Ulmus pumila				X		
474	8"	Siberian Elm	Ulmus pumila				X		
475	6"	Siberian Elm	Ulmus pumila				X		
476	11"	Norway Maple	Acer platanoides				X	X	
477	6"	American Elm	Ulmus americana						
478	7"	Silver Maple	Acer saccharinum						
479	21"	Black Locust	Robinia pseudoacacia				X		
480	9"	Siberian Elm	Ulmus pumila				X	X	
481	16"	Siberian Elm	Ulmus pumila				X	X	
482	19"	Siberian Elm	Ulmus pumila				X	X	
483	26"	Cottonwood	Populus deltoides			X		X	
484	8"	Box Elder	Acer negundo					X	
485	14"	American Elm	Ulmus americana	40% Alive				X	
486	12"	Norway Maple	Acer platanoides				X	X	
487	12"	Sweetgum	Liquidambar styraciflua			X			X
488	17"	Bradford Pear	Pyrus calleryana			X			X
489	12"	Bradford Pear	Pyrus calleryana			X			X
490	5"	Box Elder	Acer negundo						
491	14"	Siberian Elm	Ulmus pumila				X		
492	16"	Siberian Elm	Ulmus pumila				X		
493	11"	Black Locust	Robinia pseudoacacia				X		
494	8"	Silver Maple	Acer saccharinum						
495	20"	Box Elder	Acer negundo			X			
496	18"	Black Locust	Robinia pseudoacacia				X		
497	10"	Black Locust	Robinia pseudoacacia				X		
498	13"	Box Elder	Acer negundo						
499	14"	Bradford Pear	Pyrus calleryana			X			
500	30"	Black Walnut	Juglans nigra			X			

BENCHMARK

BENCHMARK #1: STEAMER VALVE TO HYDRANT NORTHERLY SIDE OF JONES DR., 125' SW OF #1440 DRIVEWAY
ELEVATION: 813.45' (NAVD88)

BENCHMARK #2: TOP NUT OF HYDRANT AT WESTERLY ENTRANCE OF BROOKSIDE APARTMENTS 53' SOUTH OF CENTERLINE PLYMOUTH RD.
ELEVATION: 800.40' (NAVD88)

BENCHMARK #3: SPIKE IN SOUTH SIDE OF UTILITY POLE 20' SE OF BUILDING #1440 CORNER
ELEVATION: 793.19' (NAVD88)

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
ALTA SURVEY AND EXISTING CONDITIONS PLAN

3

DATE: 12/20/24
SHEET 3 OF 27
CADD: KJV
ENG: JAM
PM:
TECH: ROW
23022EX01
FB:

JOB No. 23022
REVISIONS:

REV.	DATE

AREA #1

BASAL AREA		
TAG	DBH	BASAL AREA (SQ. FT)
414	7	0.27
415	20	2.18
416	7	0.27
417	8	0.35
418	12	0.79
419	23	2.89
429	19	1.97
430	19	1.97
431	21	2.41
432	7	0.27
433	29	4.59
434	8	0.35
435	7	0.27
436	15	1.23
437	14	1.07
438	15	1.23
439	23	2.89
440	20	2.18
441	22	2.64
442	17	1.58
443	9	0.44
444	14	1.07
445	6	0.20
446	9	0.44
447	7	0.27
448	7	0.27
449	8	0.35
450	8	0.35
451	10	0.55
452	7	0.27
453	11	0.66
454	6	0.20
455	9	0.44
456	9	0.44
457	13	0.92
458	9	0.44
459	9	0.44
460	11	0.66
461	9	0.44
462	9	0.44
463	12	0.79
464	10	0.55
465	11	0.66
466	10	0.55
467	29	4.59
468	27	3.98
469	14	1.07
470	14	1.07
471	11	0.66
472	10	0.55
473	9	0.44
474	8	0.35
475	6	0.20
476	11	0.66
477	6	0.20
478	7	0.27
479	21	2.41
480	9	0.44
481	16	1.40
482	19	1.97
483	26	3.69
484	8	0.35
485	14	1.07
486	12	0.79
491	14	1.07
492	16	1.40
494	8	0.35
495	20	2.18

BASAL AREA SUM	74.40	SQ. FT
BASAL AREA SAMPLE	0.55	ACRES
BASAL AREA PER 1/2 ACRE	68.12	SQ. FT

AREA #2

BASAL AREA		
TAG	DBH	BASAL AREA (SQ. FT)
406	27	3.98
420	10	0.55
421	7	0.27
422	21	2.41
423	18	1.77
424	10	0.55
425	15	1.23
426	10	0.55
427	24	3.14
428	14	1.07

BASAL AREA SUM	15.52	SQ. FT
BASAL AREA SAMPLE	0.86	ACRES
BASAL AREA PER 1/2 ACRE	9.04	SQ. FT

WETLAND INVENTORY

Feature Name	Type*	Contiguous to Water Feature	Regulated by the State of Michigan? +	Regulated by the City of Ann Arbor?
Wetland A/Stream 1	Riverine/ PFO	Yes, Traver Creek	Yes, Likely Regulated	Yes, Likely Regulated

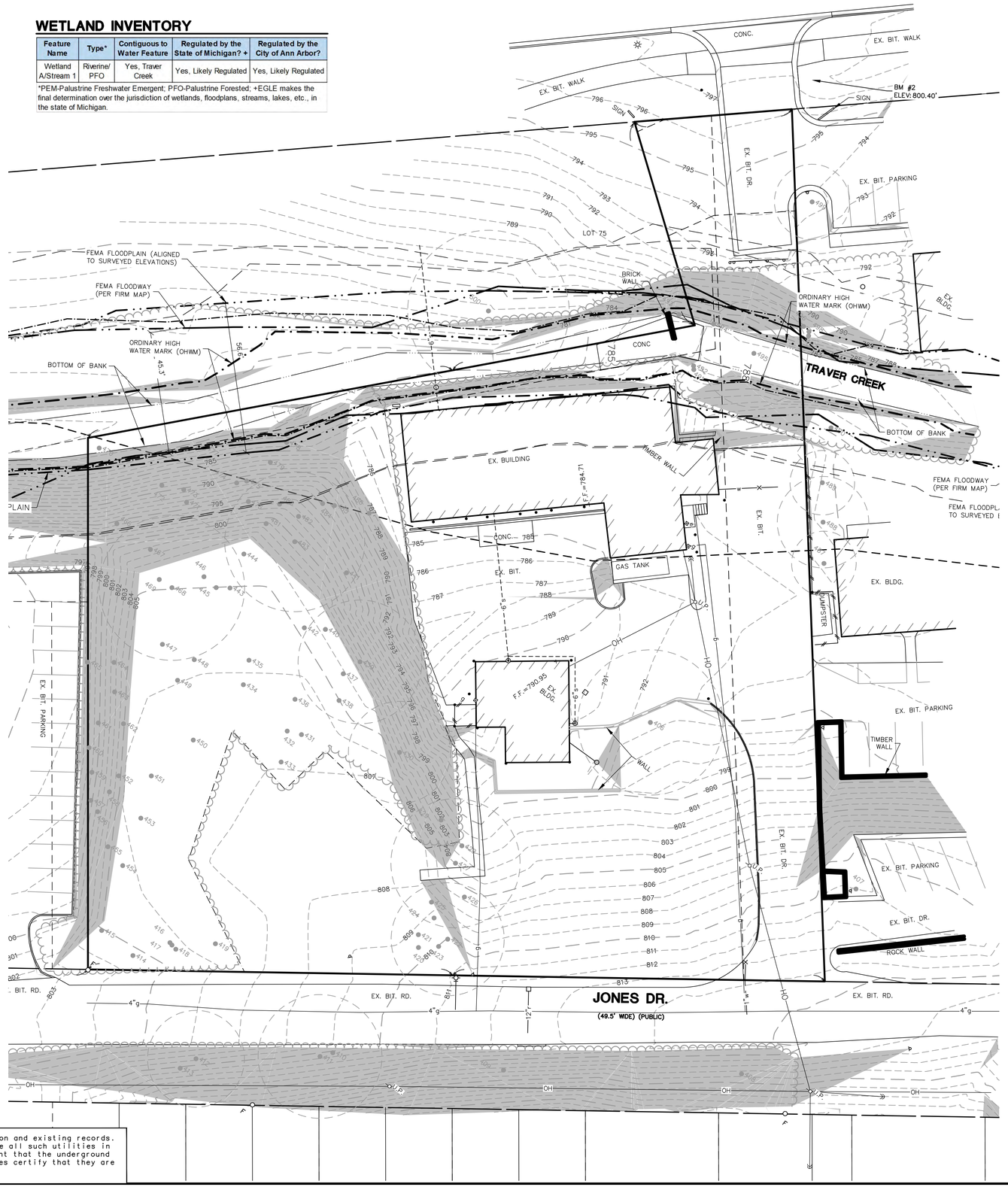
*PEM-Palustrine Freshwater Emergent; PFO-Palustrine Forested; +EGLE makes the final determination over the jurisdiction of wetlands, floodplains, streams, lakes, etc., in the state of Michigan.

BENCHMARK

BENCHMARK #1: STEAMER VALVE TO HYDRANT NORTHERLY SIDE OF JONES DR., 125' SW OF #1440 DRIVEWAY
ELEVATION: 813.45' (NAVD88)

BENCHMARK #2: TOP NUT OF HYDRANT AT WESTERLY ENTRANCE OF BROOKSIDE APARTMENTS 53' SOUTH OF CENTERLINE PLYMOUTH RD.
ELEVATION: 800.40' (NAVD88)

BENCHMARK #3: SPIKE IN SOUTH SIDE OF UTILITY POLE 20' SE OF BUILDING #1440 CORNER
ELEVATION: 793.19' (NAVD88)



SCALE: 1" = 20'
0 20 40 60

LEGEND

- EXIST. LIGHT POLE
- e — EXIST. ELECTRIC LINE
- g — EXIST. GAS LINE
- g — EXIST. GAS VALVE
- f.o. — EXIST. FIBER OPTIC LINE
- w — EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- r — EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- END SECTION
- s — EXIST. SANITARY SEWER
- EXIST. CLEANOUT
- SIGN
- BASAL AREA SAMPLE
- STEEP SLOPE

GENERAL SOILS DESCRIPTION

BASED ON SOIL SURVEY OF WASHTENAW COUNTY MICHIGAN

So – Sloan silt loam, 0 to 1 percent slopes, frequently flooded.
WawabE – Wawasee loam, 18 to 25 percent slopes.

NOTES

1) THIS SURVEY WAS PREPARED USING ATA/ABSOLUTE TITLE AGENCY TITLE, FILE NO. 81–22860415–ANN, WITH AN EFFECTIVE DATE OF DECEMBER 9, 2022.
2) THE LEGAL DESCRIPTION DESCRIBES THE SAME PROPERTY AS INSURED IN THE TITLE COMMITMENT AND ANY EXCEPTIONS HAVE BEEN NOTED HEREIN.
3) SAID DESCRIBED PROPERTY IS LOCATED WITHIN A 100–YEAR FLOOD PLAIN ZONE PER FLOOD INSURANCE RATE MAP NO. 26161C0261E, WITH AN EFFECTIVE DATE OF APRIL 3, 2012, FOR COMMUNITY NUMBER 260213, IN WASHTENAW COUNTY, STATE OF MICHIGAN, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED.
4) WETLAND LIMITS PROVIDED BY CLIENT SUBCONSULTANT, MARX WETLANDS, LLC., DRAWING, SKETCH AND REPORT DATED MARCH 23, 2023.

NATURAL FEATURES ALTERNATIVE ANALYSIS

NATURAL FEATURES DESCRIPTION

The subject Site is an approximately 1.47-acre area comprised of two (2) parcels, #09-09-21-301-046 and 09-09-21-301-047, located south of Plymouth Road and north of Jones Drive in the City of Ann Arbor and Section 21 of Arbor Township (T2S, R6E), Washtenaw County Michigan further referred to as 'Site'.

The Site lies within a relatively developed area of the City of Ann Arbor, containing primarily residential and commercial development scattered with undeveloped land. The Site is bounded by residential developments (Brookside Apartments and Avalon Housing, etc.) to the east and west, Plymouth Road and Plymouth Parkway Park to the north, and Jones Drive to the south. The Site contains two (2) parcels that are mainly undeveloped, containing areas of disturbed upland fields, scrub-shrub/forest, and one (1) riverine wetland associated with Traver Creek. The western parcel has evidence of a demolished building and asphalt/gravel, and the eastern parcel contains two existing buildings/garage structures. One (1) stream (Traver Creek, tributary of Huron River) transects the site's northern portion.

The National Wetlands Inventory (NWI) map indicates one (1) riverine wetland is likely within the Site. The properties were delineated by Marx Wetlands who flagged wetland boundaries with pink high-visibility ribbon tape and located the wetland flags with a GNSS receiver (e.g., Trimble R1) with submeter accuracy whereby one (1) riverine wetland area (Wetland A)/Traver Creek was confirmed and flagged within the Site's northern portion.

According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, the Site contains two (2) main soil types: Sloan silt loam, 0 to 1 percent slopes (So, 94% hydric rating), which is considered a hydric soil, and Wawasee loam, 18 to 25 percent slopes (WawabE, 0% hydric rating).

According to Washtenaw County's City of Ann Arbor Drain Map, one (1) county drain (Traver Creek; Tributary of the Huron River) enters the northeast portion of the Site, flows southwest, and exits off-site.

Review of FEMA FIRM Panel No. 26161C0261E (effective on 04/03/2012) showed that the northern portion of the Site contains an area mapped as Zone AE 100-year floodway (with base flood elevations ranging between 780 feet and 785 feet mean sea level (MSL) associated with Traver Creek. The remaining site areas have minimal flood hazards (e.g., Zone X).

Slopes of approximately 20% - 68% were identified on the Site with the high side located along Jones Drive sloping down toward Traver Creek located at the northwestern side of the Site. The lowest area of the Site being Traver Creek.

The southwestern portion of the Site is heavily wooded. Much of this area consists of steep slope generated by construction fill identified as slag. Over time, volunteer species grew in these areas and matured many of which grew to be landmark trees as identified in the tree survey. Many species identified are invasive further identifying the Site in conjunction with the slag fill, as a disturbed site. This area was also identified as a woodland after calculating basal area which was determined to be 34.71 sf/acre.

NATURAL FEATURES STATEMENT OF IMPACTS

- Woodland and Landmark Trees: woodland and landmark trees to be removed are identified on the existing conditions plan, removal plan and within the tree inventory list. Refer to the tree inventory list and landscape plan for a summary of the tree removal impact and mitigation requirements.
- The proposed development anticipates removal of woodland trees and landmark trees and proposed grading within the critical root zones of four landmark trees. Mitigation is proposed and is comprised of native species in locations more conducive to maintenance of the City's infrastructure.

NATURAL FEATURES PROTECTION PLAN

Refer to the Soil Erosion Control Plan for protection measures to be installed. Article 25 of the Unified Development Code for the City of Ann Arbor also indicates that the City requires a 25-foot vegetated setback (natural features setback) between principal building developments and water features, including wetlands, stormwater facilities, rivers, lakes, and streams. A 25' setback is provided.

NATURAL FEATURES ALTERNATIVE ANALYSIS

Refer to the Alternative Analysis for other layouts which compare impacts to the landmark and woodland trees.

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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CLIENT
GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

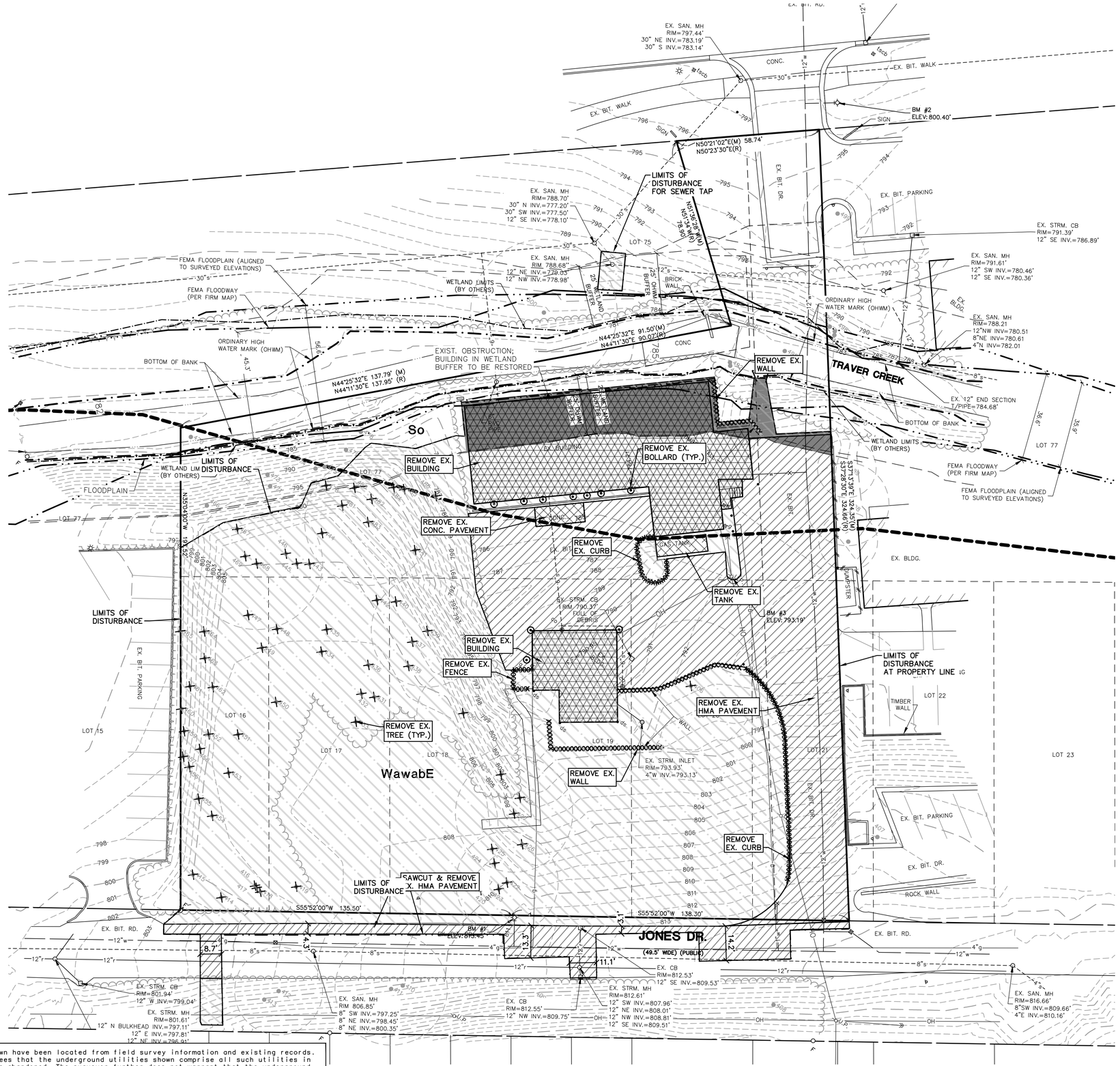
SITE PLAN FOR REZONING AND CITY COUNCIL
NATURAL FEATURES ANALYSIS PLAN

4

DATE: 12/20/24
SHEET 4 OF 27
CADD: KJV
ENG: JAM
PM:
TECH:
23022NF01
FB:

JOB No. 23022

REVISIONS:	REV.	DATE



LEGEND

- EXIST. CONTOUR
- EXIST. SPOT ELEVATION
- EXIST. LIGHT POLE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- EXIST. FIBER OPTIC LINE
- EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- END SECTION
- EXIST. SANITARY SEWER
- EXIST. CLEANOUT
- SIGN
- CONCRETE TO BE REMOVED
- BITUMINOUS TO BE REMOVED
- BUILDING TO BE REMOVED
- VEGETATED AREA TO BE REMOVED
- SITE FEATURE TO BE REMOVED
- CURB TO BE REMOVED
- WALL TO BE REMOVED
- TREE TO BE REMOVED
- SIGN TO BE REMOVED
- BOLLARD TO BE REMOVED

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ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

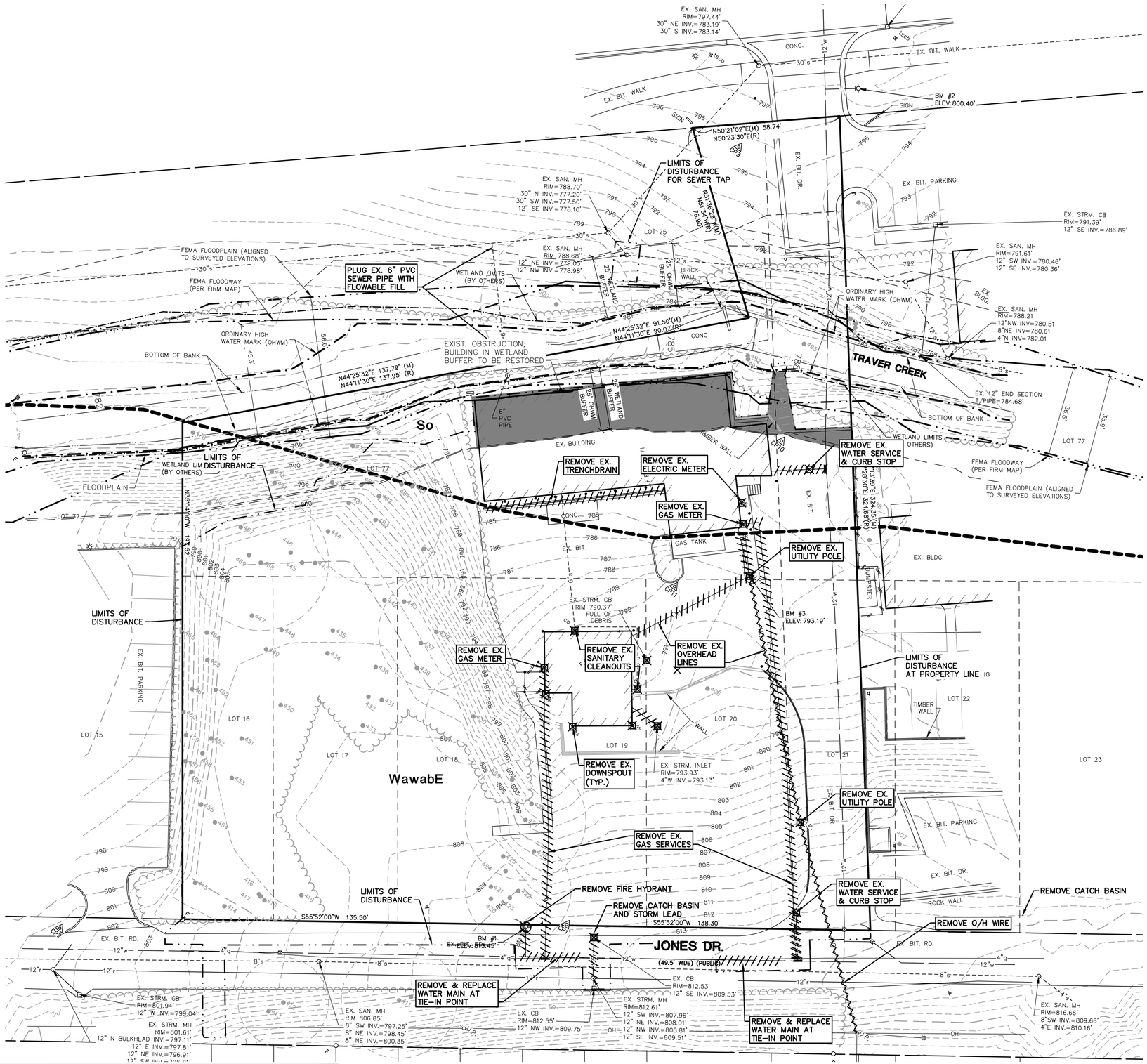
SITE PLAN FOR REZONING AND CITY COUNCIL
SITE REMOVALS PLAN

5

DATE: 12/20/24
SHEET 5 OF 27
CADD: KJV
ENG: JAM
PM: RCW
TECH:
23022SE01
FB:

JOB No. 23022

REVISIONS: REV. DATE:



SCALE: 1" = 20'

0 20 40 60

LEGEND

838	EXIST. CONTOUR
☼	EXIST. SPOT ELEVATION
☼	EXIST. LIGHT POLE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
	EXIST. HYDRANT
	EXIST. GATE VALVE IN BOX
r	EXIST. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	END SECTION
s	EXIST. SANITARY SEWER
	EXIST. CLEANOUT
P	SIGN
	UNDERGROUND UTILITY TO BE REMOVED
	OVERHEAD UTILITY TO BE REMOVED
	UTILITY STRUCTURE TO BE REMOVED
	DISCONNECT UTILITY

ALL UNUSED SERVICE LEADS SERVING THE PROJECT PARCELS SHALL BE DISCONNECTED PER THE PUBLIC SERVICES STANDARD SPECIFICATIONS AT THEIR RESPECTIVE MAINS WITH THE PROJECT.

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SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

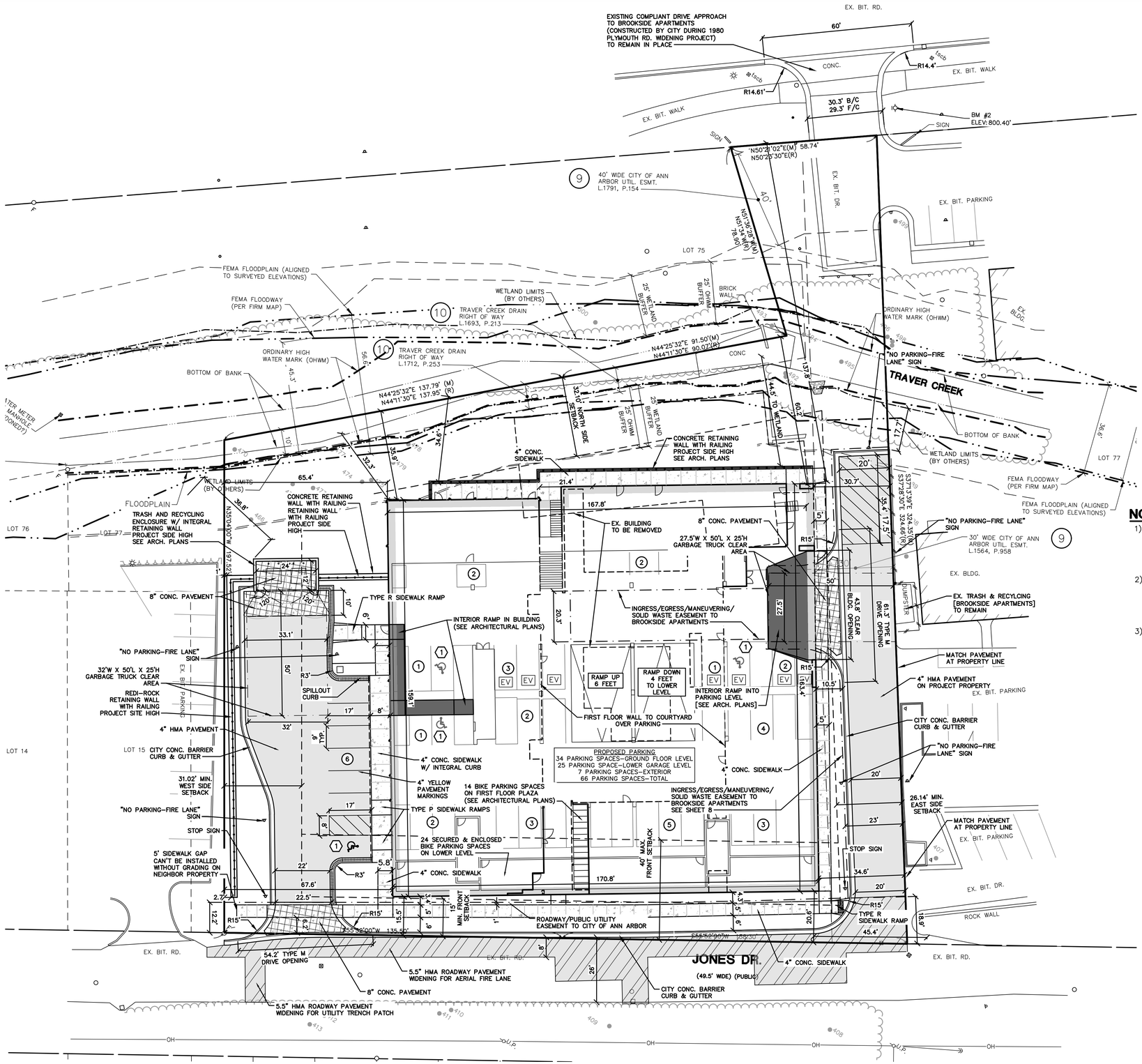
SITE PLAN FOR REZONING AND CITY COUNCIL
UTILITY REMOVALS PLAN

6

JOB No. 23022

REVISIONS:	REV.	DATE

DATE: 12/20/24
SHEET 6 OF 27
CADD: KJV
ENG: JAM
PM: ROW
TECH:
23022SE01
FB:



SCALE: 1" = 20'

0 20 40 60

LEGEND

- (5) NUMBER OF STANDARD PARKING SPACES
- (4) NUMBER OF ADA PARKING SPACES
- PROP. 4" HMA PARKING LOT PAVEMENT
- PROP. 5.5" HMA ROADWAY PAVEMENT
- PROP. 4" CONCRETE SIDEWALK
- PROP. 8" CONCRETE PAVEMENT
- BUILDING SETBACK LINE
- EASEMENT LINE

NOTES

1) ALL WORK IN JONES DRIVE R.O.W., AND ASSOCIATED WITH DRIVE APPROACHES AND SIDEWALKS, AS WELL AS ALL HYDRANT LEADS AND BUILDING WATER LEADS, SHALL BE PERMITTED AND INSPECTED BY THE CITY OF ANN ARBOR. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS.

2) THIS PROJECT INVOLVES DISTURBANCE IN THE CITY 25' WETLAND BUFFER TO IMPROVE AND RESTORE THE BUFFER AND FLOODPLAIN BY REMOVING THE EXISTING ARBOR SPRINGS BUILDING. WHEN CONSTRUCTION IS COMPLETE THE WETLAND WILL HAVE A 32' AVERAGE WETLAND BUFFER, PLANTED WITH NATIVE PLANTINGS.

3) THE PROJECT WILL HAVE A STORM SEWER OUTLET INSTALLED INTO THE BANK OF TRAVER CREEK (A COUNTY DRAIN). THIS WILL REQUIRE A WCWRC COUNTY DRAIN PERMIT AND AN EGLE/USACE JOINT PERMIT.

Open Space Area Calculation		
Area Type	**Area (acres)**	**Area (sft)**
Building Footprint	0.63	27,604
Paved Drives and Parking	0.29	12,657
Open Space Outside of Building Footprint	0.55	23,874
Open Space Within Building Footprint (Courtyard Area)	0.19	8,237
Total Site Area	1.47	64,135
Total Open Space	0.74	32,111
Open Space Percentage		**50.1%**

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248-909-2021

1329 / 1333 JONES DRIVE

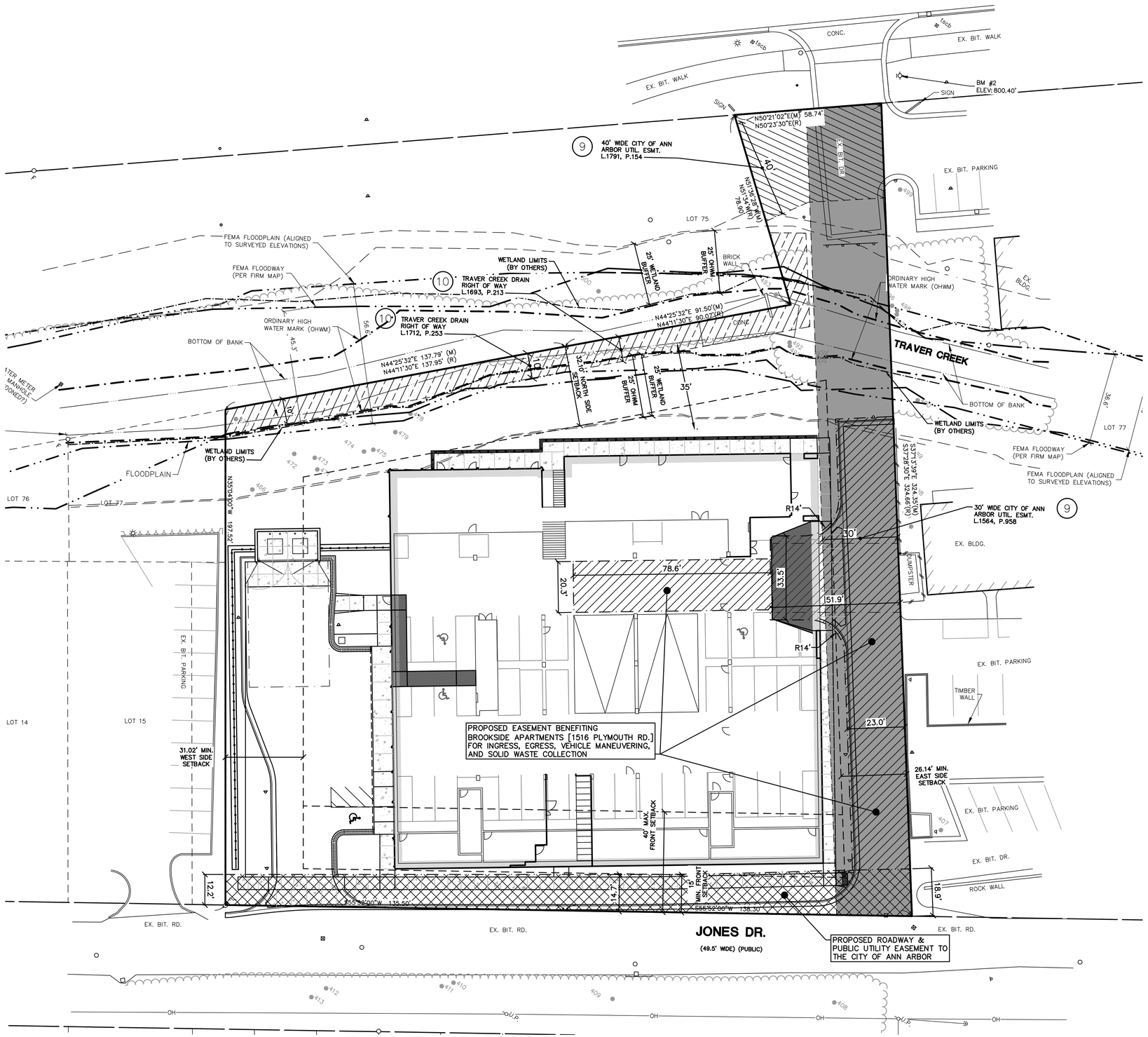
SITE PLAN FOR REZONING AND CITY COUNCIL
DIMENSIONAL LAYOUT PLAN

7

DATE: 12/20/24
SHEET 7 OF 27
CADD: KJV
ENG: JAM
PM: RCW
TECH:
23022SP01
FB:

JOB No. 23022

REVISIONS: REV. DATE:



SCALE: 1" = 20'

0 20 40 60

LEGEND

EASEMENT LINE

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SITE PLAN FOR REZONING AND CITY COUNCIL
SITE EASEMENT PLAN

8

JOB No. 23022
REVISIONS:

REV. DATE

DATE: 12/20/24
SHEET 8 OF 27
CADD: KJV
ENG: JAM
PM: RDW
TECH:
230225P02
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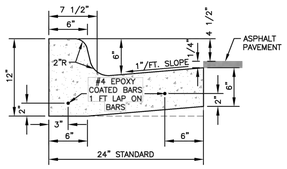


NOTES:

1. BARRIER CURB AND GUTTER ON ASPHALT STREETS SHALL CONFORM TO THIS DETAIL.
2. BARRIER CURB AND GUTTER ON CONCRETE STREETS SHALL CONFORM TO MDOT CURB AND GUTTER DETAIL F3.

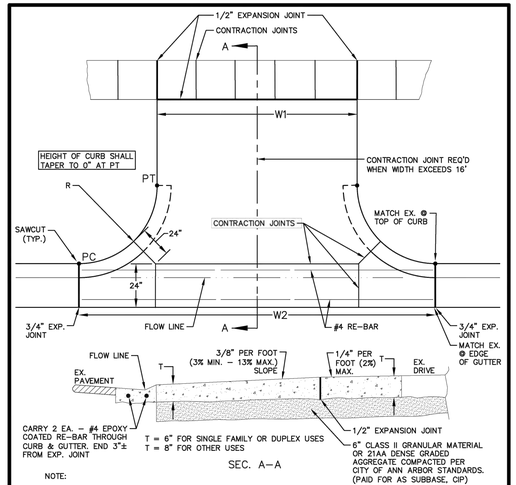
CITY OF ANN ARBOR PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

REV. NO.	DATE	DRAWN BY	CHECKED BY

BARRIER CURB AND GUTTER

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 12/8/2023	SD-CG-1

BARRIER CURB AND GUTTER
NOT TO SCALE



SEC. A–A

NOTE:

1. MINIMUM REQUIREMENT FOR DRIVE APPROACH TO BE MDOT 3500 CONCRETE.
2. R (RADIUS) AND W1 (OPENING WIDTH) AND W2 (CURB CUT WIDTH) AS REQUIRED PER TABLE A, ARTICLE 6 OF CITY STANDARDS
3. IF GUTTER IS OVERLAID, GUTTER OF THE APPROACH SHALL BE AT SAME ELEVATION AS EXISTING CONCRETE GUTTER AND ASPHALT WEDGE SHALL BE PLACED IN THE APPROACH.

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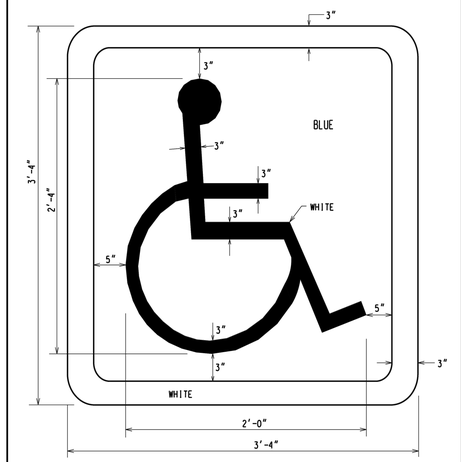
REV. NO.	DATE	DRAWN BY	CHECKED BY

TYPE M DRIVE APPROACH FOR ASPHALT STREETS WITH BARRIER CURB

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 12/8/2023	SD-DS-1

TYPE M APPROACH
NOT TO SCALE



NOT TO SCALE

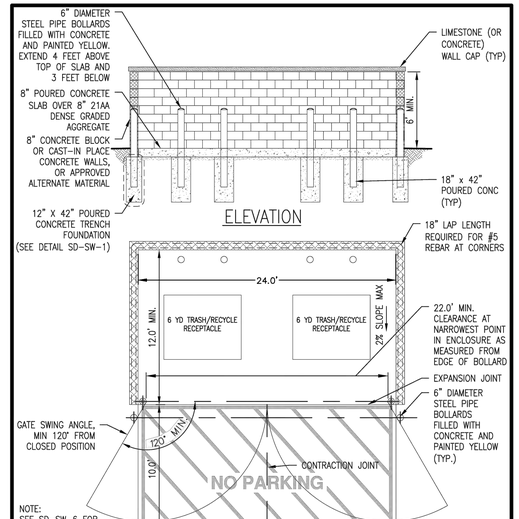
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

09/21/20	03/25/20	PAVE-956-D	SHEET 6 OF 6
T.E.S.S. APPROVAL	PLAN DATE		

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

ACCESSIBLE PAVEMENT MARKING SYMBOL

ADA PARKING SYMBOL
NOT TO SCALE



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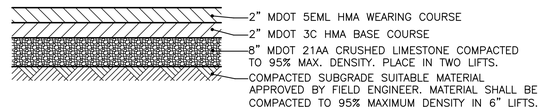
REV. NO.	DATE	DRAWN BY	CHECKED BY

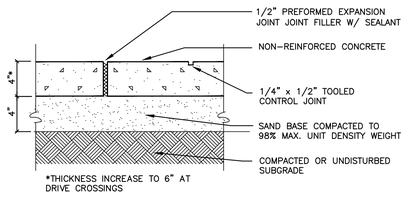
DOUBLE BIN ENCLOSURE

DR. ENG	CH. ENG	DRAWING NO.
SCALE N.T.S.	DATE 12/8/2023	SD-SW-2

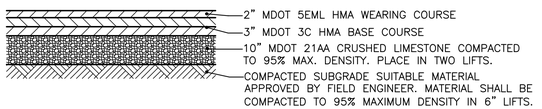
DOUBLE BIN TRASH ENCLOSURE
NOT TO SCALE



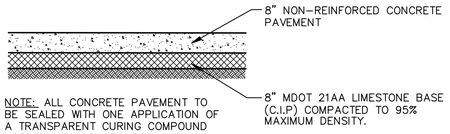
4" HMA PARKING LOT AND DRIVE PAVEMENT DETAIL
NOT TO SCALE



CONCRETE WALK DETAIL
NOT TO SCALE



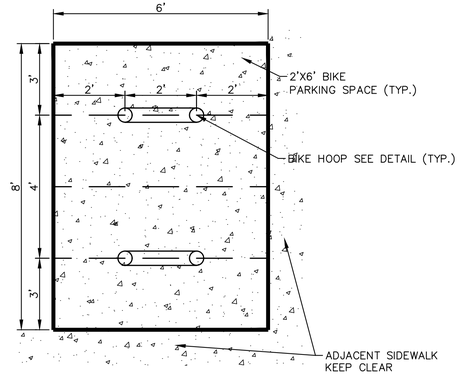
5.5" HMA ROADWAY PAVEMENT DETAIL
NOT TO SCALE



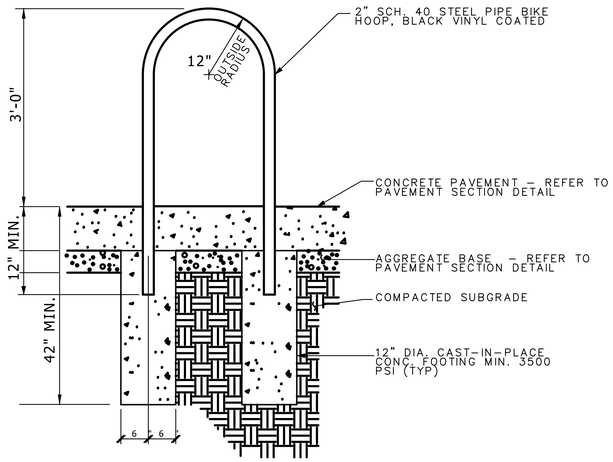
NOTE: ALL CONCRETE PAVEMENT TO BE SEALED WITH ONE APPLICATION OF A TRANSPARENT CURING COMPOUND APPLIED AT A RATE OF 1 gal. per 200 sq. ft..

PROP. CONCRETE PAVEMENT DETAIL
NOT TO SCALE

ADA PARKING SIGN (12"x18")
NOT TO SCALE



BIKE PARKING DETAIL
NOT TO SCALE



BIKE HOOP DETAIL
NOT TO SCALE

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SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

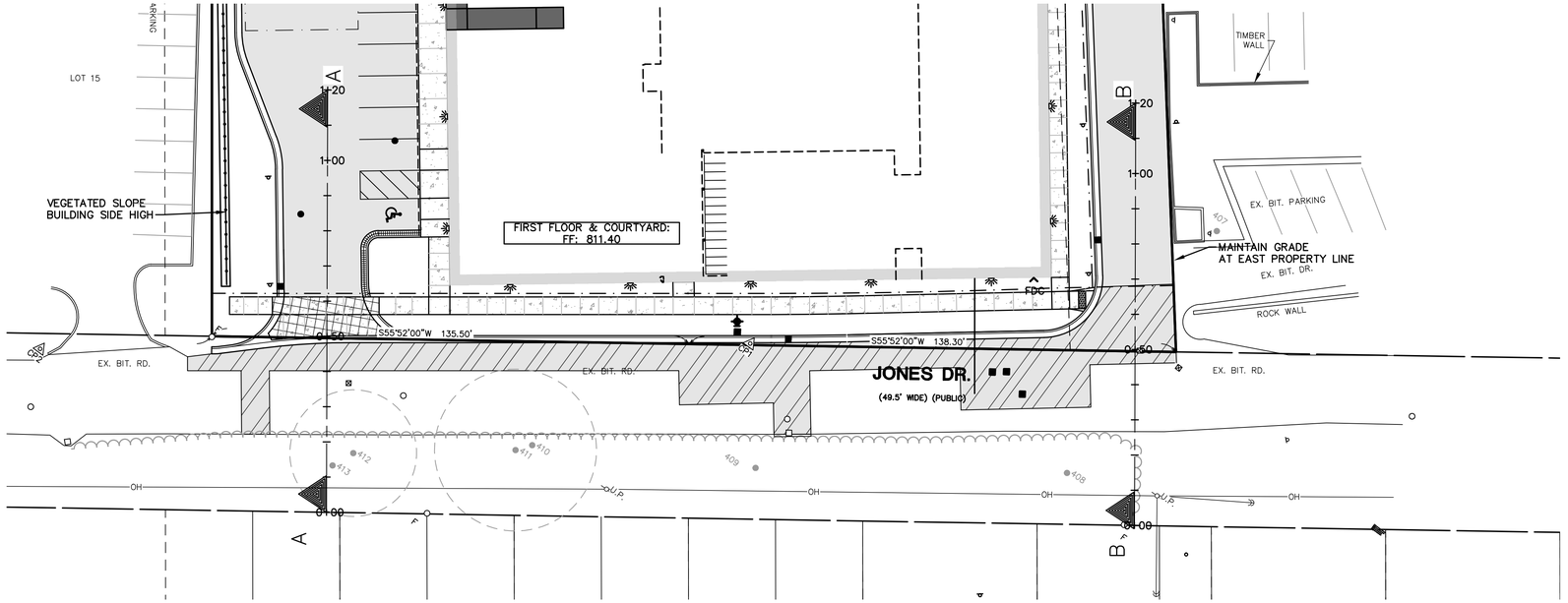
SITE DETAILS

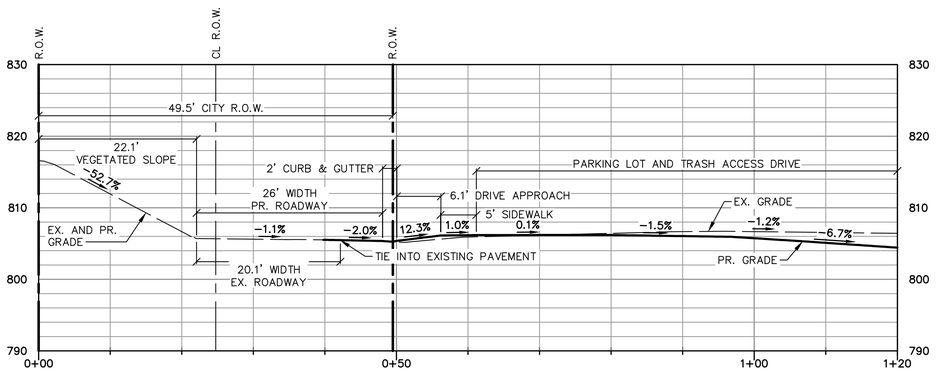
9

DATE: 12/20/24
SHEET 9 OF 27
CADD: CMW
ENG.: JAM
PM: RCW
TECH:
FB:

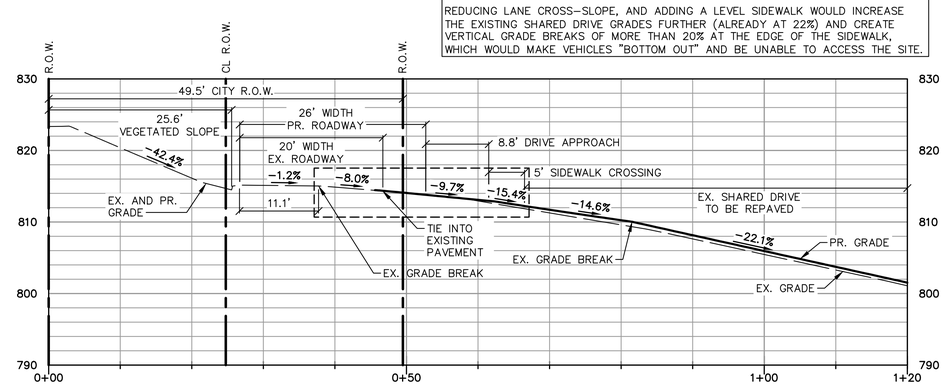
REVISIONS:	REV.	DATE
SITE PLAN SUBMITTAL 1	1	10/25/24
SITE PLAN SUBMITTAL 2	2	12/20/24

JOB No. **23022**





SECTION A



SECTION B

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SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

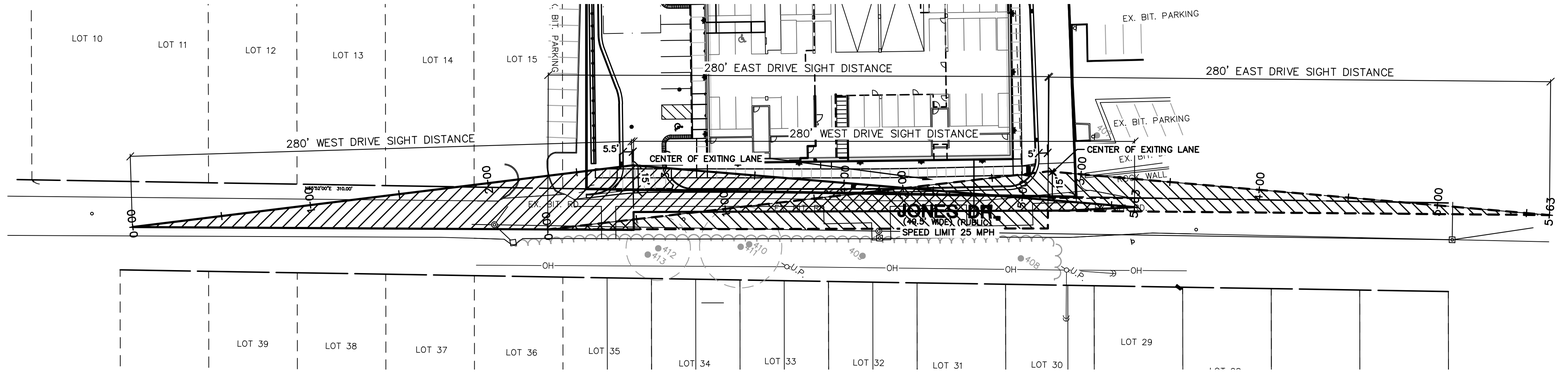
1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
JONES DRIVE CROSS-SECTIONS

10

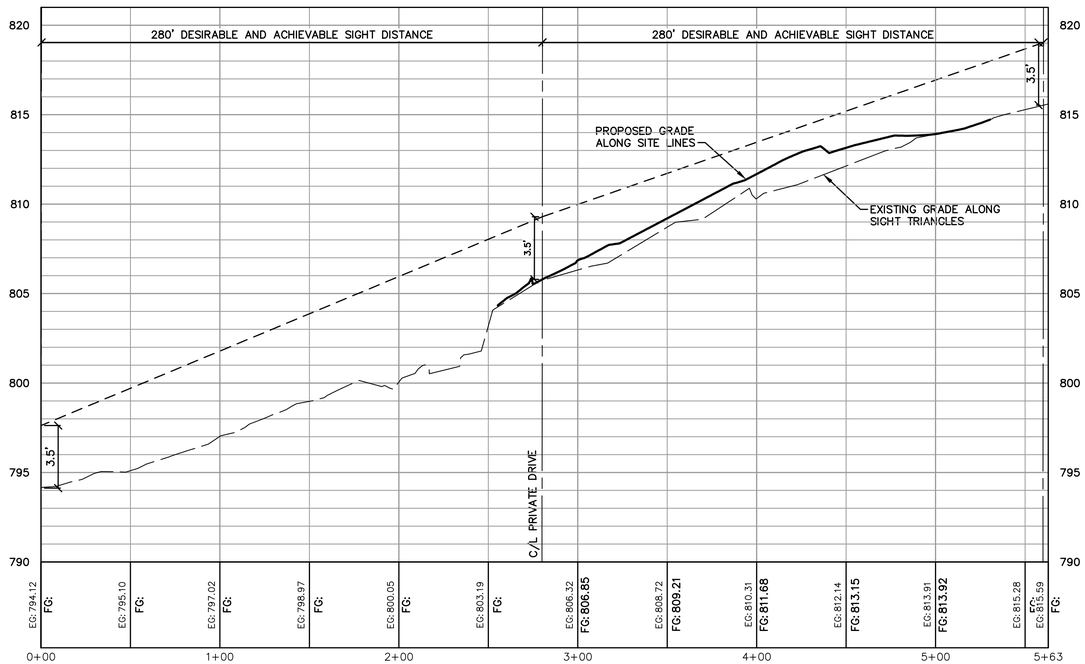
DATE: 12/20/24
SHEET 10 OF 27
CADD: KJV
ENG: JAM
PM: ROW
TECH:
Z:\2022\23022CS01
FB:

JOB No. 23022
REVISIONS:
REV. DATE

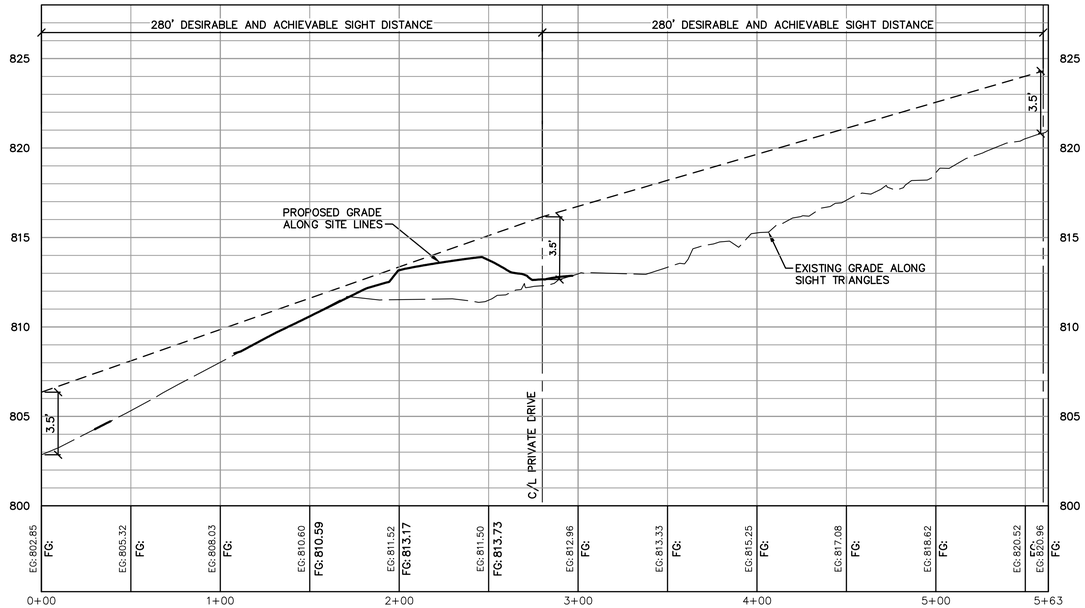


NOTES

AASHTO DESIGN INSTERSECTION SIGHT DISTANCE – CASE B1, LEFT TURN FROM STOP.
DESIGN SPEED: 25 MPH
INTERSECTION DESIGN DISTANCE: 280'
DRIVER/OBJECT HEIGHT: 3.5'
POINT OF TRIANGLE ASSUMED TO BE CENTERED ON THE EXITING LANE AND 15' OFFSET OF EDGE OF OUTGOING LANE.



SIGHT DISTANCE WEST DRIVE
1"=40' HORZ. – 1"=4' VERT.



SIGHT DISTANCE EAST DRIVE
1"=40' HORZ. – 1"=4' VERT.

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
DRIVEWAY SIGHT DISTANCE ANALYSIS

11

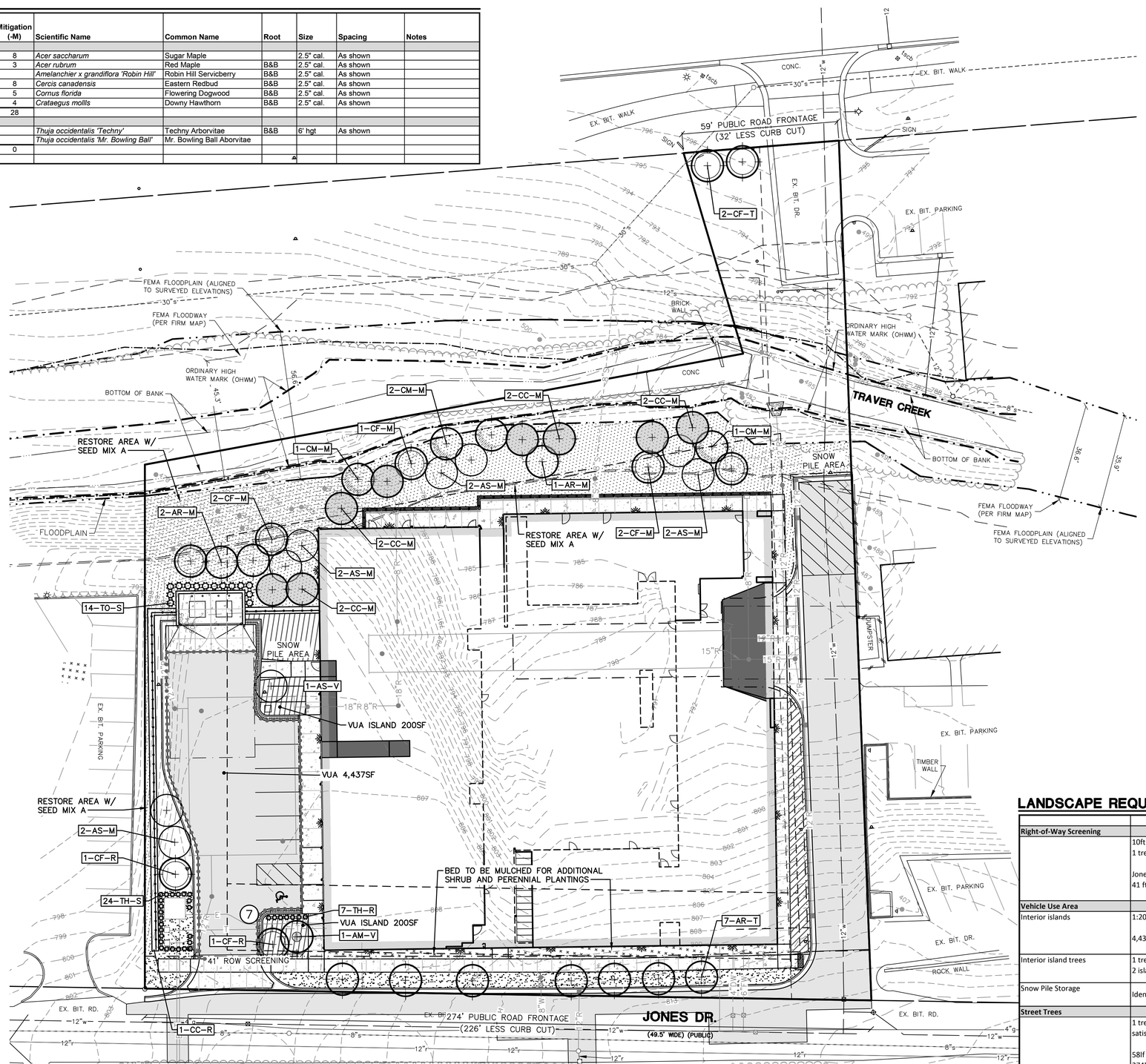
JOB No. 23022
REVISIONS:

REV.	DATE

DATE: 12/20/24
SHEET 11 OF 27
CADD: KJV
ENG: JAM
PM: RDW
TECH:
23022SD01
FB:

PLANT SCHEDULE

Total		Code	ROW Screening (-R)	Street Trees (-T)	VUA (-V)	Site (-S)	Mitigation (-M)	Scientific Name	Common Name	Root	Size	Spacing	Notes
Deciduous Canopy Trees													
	9	AS			1		8	*Acer saccharum*	Sugar Maple		2.5" cal.	As shown	
	10	AR		7			3	*Acer rubrum*	Red Maple	B&B	2.5" cal.	As shown	
	1	AM			1			*Amelanchier x grandiflora 'Robin Hill'*	Robin Hill Servicberry	B&B	2.5" cal.	As shown	
	8	CC					8	*Cercis canadensis*	Eastern Redbud	B&B	2.5" cal.	As shown	
	9	CF	2	2			5	*Cornus florida*	Flowering Dogwood	B&B	2.5" cal.	As shown	
	4	CM					4	*Crataegus mollis*	Downy Hawthorn	B&B	2.5" cal.	As shown	
Sub Total	41		2	9	2	0	28						
Shrubs													
	14	TO				14		*Thuja occidentalis 'Techny'*	Techny Arborvitae	B&B	6' hgt	As shown	
	31	TH	7			24		*Thuja occidentalis 'Mr. Bowling Ball'*	Mr. Bowling Ball Aborvitae				
Sub Total	45		7	0	0	38	0						
TOTAL	86												



SCALE: 1" = 20'

0 20 40 60

LEGEND

- EXIST. LIGHT POLE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- EXIST. FIBER OPTIC LINE
- EXIST. WATER MAIN
- PROP. WATER MAIN
- EXIST. HYDRANT
- PROP. HYDRANT
- EXIST. GATE VALVE IN BOX
- PROP. GATE VALVE IN BOX
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- PROP. ROOF DRAIN
- END SECTION
- PROP. DOWNSPOUT
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- SIGN
- NUMBER OF STANDARD PARKING SPACES IN ROW
- NUMBER OF BARRIER FREE PARKING SPACES IN ROW
- PROPOSED GROUND COVER
- PROPOSED MULCH
- SEED MIX "B"
- SEED MIX "A"
- PROPOSED EDGING
- VEHICULAR USE AREA LIMITS

LANDSCAPE REQUIREMENT

	Required	Proposed
Right-of-Way Screening		
	10ft when VUA viewed from ROW 1 tree per 30lf; continuous hedge/screen 30inches in ht Jones Dr: 41 ft / 30 = 2 trees required	2 Trees Proposed 7 Shrubs Proposed
Vehicle Use Area		
Interior islands	1:20sf VUA ratio for island, minimum 165 SF Per Island 4,437 SF / 20 = 222 SF required	VUA1: 400 SF Proposed
Interior island trees	1 tree per island; 1 tree per 250 SF required island area 2 islands = 2 trees required	2 Trees Proposed
Snow Pile Storage	Identify locations on plan	Identified
Street Trees		
	1 tree per 45lf abutting public street right-of-way; may be satisfied by existing trees 58lf (without curb cuts) / 45lf = 2 trees (Plymouth Dr) 274lf (without curb cuts) / 45lf = 7 trees (Jones Drive)	Plymouth Drive: 2 Proposed Jones Drive: 7 Proposed
Tree Mitigation		
	50% DBH of Woodland and LM removed 140" / 2 = 70" 70" / 2.5" = 28 Trees	28 Trees Proposed
Outdoor Refuse/Recycling		
	6ft high opaque wall or fence when viewed from ROW or adjacent residential use.	Screenwall and shrub planting

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
LANDSCAPE PLAN

12

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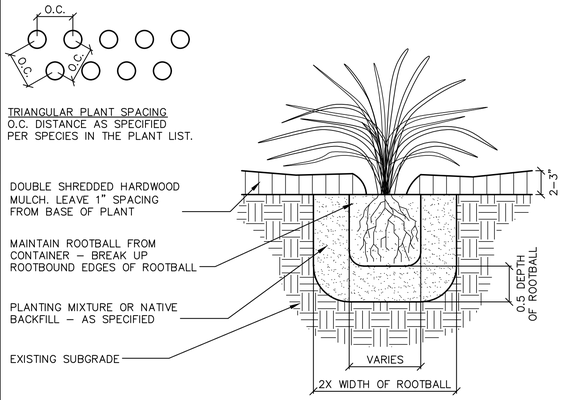
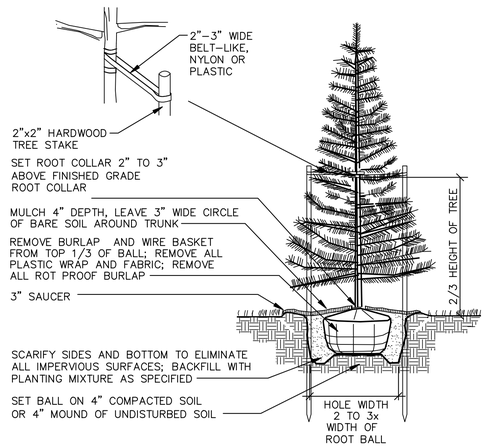


PERENNIAL PLANTING DETAIL

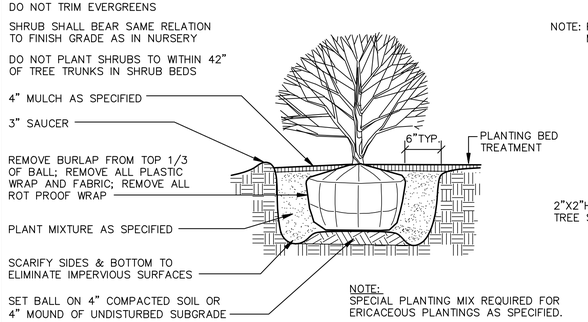
NOT TO SCALE

NOTE: A: STAKING IS ONLY REQUIRED IF THE SITE IS WINDY OR THE TREES ARE GREATER THAT 3" CALIPER. IF TREES MUST BE STAKED, THE STAKED SHALL BE REMOVED IN ONE YEAR.



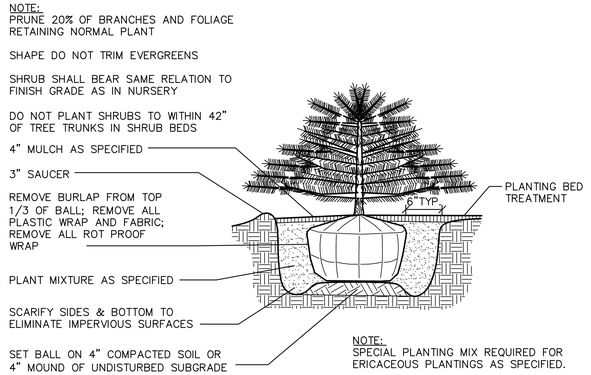
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

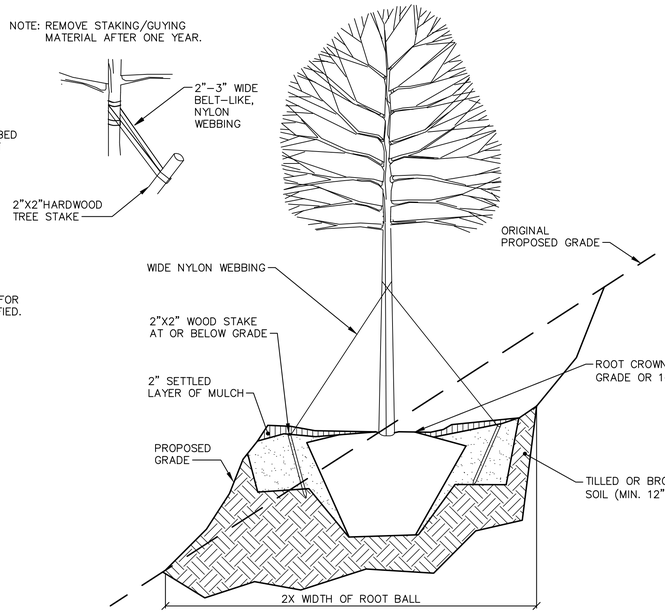
NOT TO SCALE



EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

NOTE: REMOVE STAKING/GUYING MATERIAL AFTER ONE YEAR.

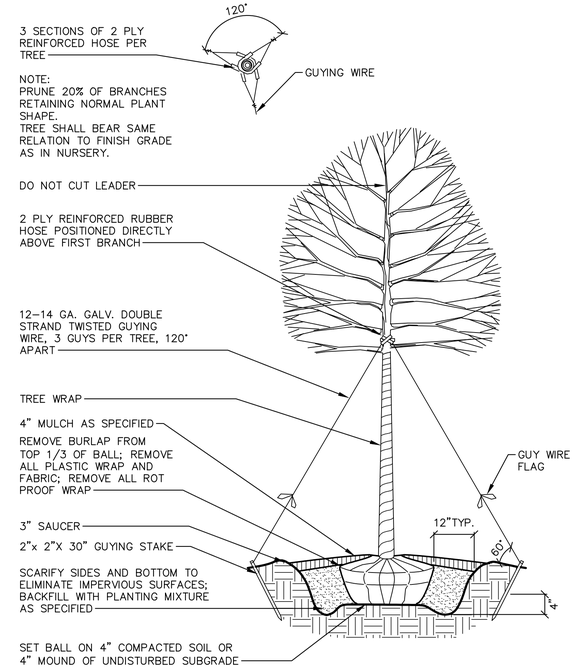


NOTES:

1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1–2004). PLANT ACCORDING TO ANSI A300 PART 6.
2. DIG THE PLANTING HOLE A MINIMUM OF 2X THE WIDTH OF THE ROOT BALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN THE ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS.
4. LIFT AND SET THE TREES BY ROOT BALL ONLY.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOT BALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL–TILLED OR BROKEN UP.
8. USE THREE 2"X2" WOOD STAKES DRIVEN INTO THE UNDISTURBED SOIL A MINIMUM OF 16". SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 2–3" (SETTLED) DEPTH OF BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.

DECIDUOUS TREE ON SLOPE - PLANTING DETAIL

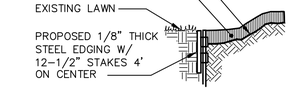
NOT TO SCALE



DECIDUOUS TREE - PLANTING DETAIL

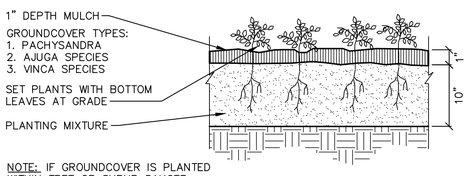
NOT TO SCALE

NOTE:
MATERIALS TO BE FLUSH WITH THE TOP OF EDGING



STEEL EDGING DETAIL

NOT TO SCALE



NOTE: IF GROUNDCOVER IS PLANTED WITHIN TREE OR SHRUB SAUCER PLANT TO EDGE OF SAUCER. MULCH DEPTH ONLY AS REQUIRED TO COVER GROUND SURFACE.

GROUNDCOVER PLANTING DETAIL (TYPE B)

NOT TO SCALE

LANDSCAPE NOTES

1. For any plant quantity discrepancies between the plan view and the plant schedules, the plant schedule shall take precedence.
2. Plant materials shall be selected and installed in accordance with standards established by the City of Ann Arbor.
3. In-ground automatic irrigation shall be provided for all landscaped areas or water outlets shall be provided within 150 feet of all required plantings.
4. All diseased, damaged or dead material shown on the site plan as proposed plantings shall be replaced by the end of the following growing season.
5. Restore disturbed areas with a minimum of four (4) inches of topsoil and then seed/ fertilize/mulch.
6. All disturbed areas not to be seeded with seed mixes identified on the Landscape Plan shall be sod.
7. After the first growing season, only fertilizers that contain NO phosphorus shall be used on the site.
8. All seeded areas with slopes less than 1:3 (one vertical foot for every 3 horizontal feet) shall be mulched with straw mulch at the rate of two (2) bales per 1,000 square feet. All seeded areas with slopes greater than 1:3 shall be seeded and provided with a biodegradable erosion control blanket.
9. Deciduous plants shall be planted between March 1 and May 15 and from October 1 until the prepared soil becomes frozen. Evergreen plants shall be planted between March 1 and June 1 and from August 15 to September 15.
10. All planting beds are to receive four (4) inches of shredded hardwood bark mulch.
11. All trees to be located a minimum of 10 feet from public utilities.
12. All single trunk, deciduous trees shall have a straight and a symmetrical crown with a central leader. One sided trees or those with thin or open crowns shall not be accepted.
13. All evergreen trees shall be branched fully to the ground, symmetrical in shape and have not been sheared in the last three (3) growing seasons.
14. All compacted subgrade soils in proposed landscape areas shall be tilled to a minimum 12-inch depth prior to placement of topsoil, geotextile fabric, or other planting media as specified.
15. Planting Soil: Shall meet industry standard mixture.
16. Snow storage areas are located as shown on the plan.
17. All species deviations must be approved in writing by the City of Ann Arbor prior to installation.
18. The City of Ann Arbor has adopted an ordinance limiting phosphorus in fertilizer to assist in compliance with the State mandated TMDL for phosphorus within the Middle Huron River basin. Applications of fertilizer beyond the initial topsoil and seeding shall be a fertilizer with no phosphorus.

Maintenance:

1. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
2. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
3. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
4. Contractor shall warranty all plant material and trees to remain alive and be in healthy, vigorous and like new condition for the specified period from installation to Substantial Completion. The entire Landscaping Project, including but not limited to: plants (perennials), trees, shrubs, mulches, shrubs, etc are to be under Warranty for One Year after Substantial Completion date of the Project. At the end of the specified One Year Warranty period the Owner's Representative will inspect plant material for compliance. Contractor shall replace, in accordance with the drawings and specifications, all plants, trees, shrubs, etc or as determined by the Owner's Representative, are in an unhealthy or unsightly condition. Warranty shall not include damage or loss of plants, trees, and shrubs caused by fires, floods, freezing rains, lightning storms, or winds over 75 miles per hour, acts of vandalism or negligence on the part of the owner, or any other incident beyond landscape contractor's control.
5. Watering: The contractor shall keep seed moist for optimum plant growth (1" of total water per week, including rainfall) until the grass is four (4) inches high typical.
6. Protection from traffic and erosion in newly seeded areas is the responsibility of the contractor. Safety fences and/or silt fence with appropriate signage may be used at the contractor's expense until the grasses and flowers are fully established.
7. Erosion shall be repaired by the contractor.
8. Turf installations shall meet the following criteria as determined by Owner:
   a. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
   b. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
   c. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
LANDSCAPE DETAILS

13

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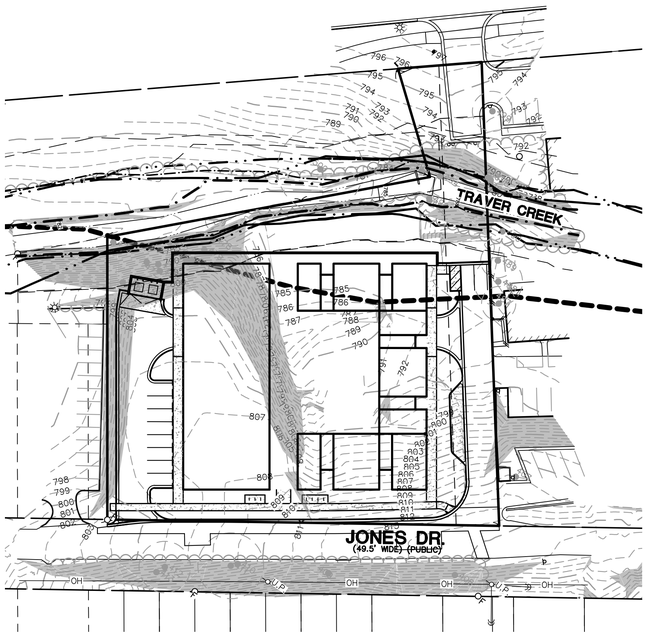
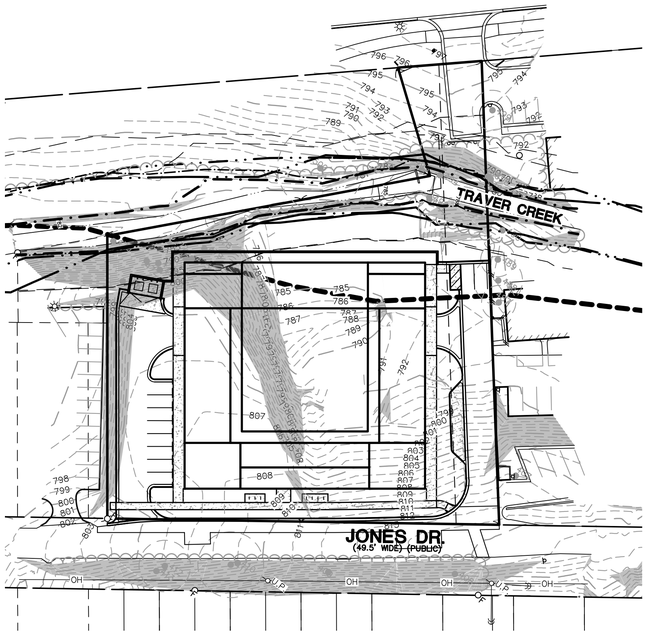


ALTERNATIVE SITE LAYOUT #1

PROS:
- REMOVAL OF STRUCTURES FROM THE FLOOD PLAIN
- REMOVAL OF SLAG MATERIAL FROM SITE

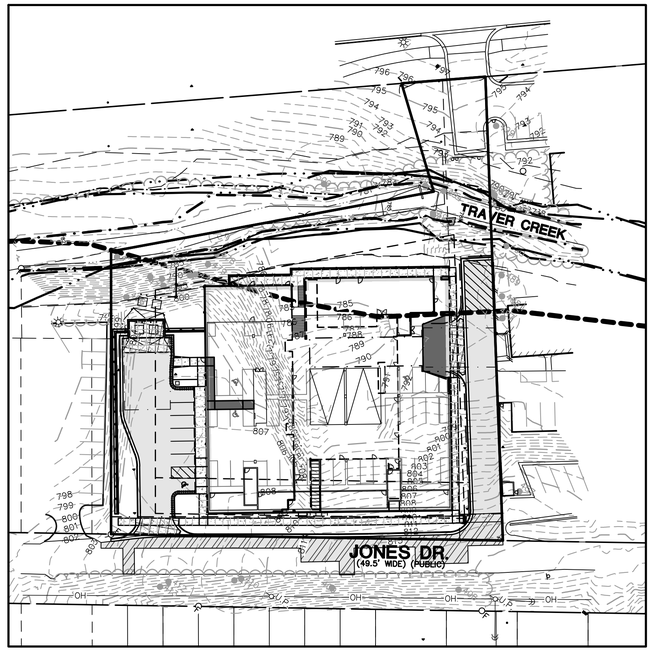
CONS:
- REQUIRES EXCESSIVE UNDERGROUND STRUCTURAL
- WEST SIDE OF BUILDING IS EXCESSIVE FOR SITE REMOVAL OF TREES



ALTERNATIVE SITE LAYOUT #2

PROS:
- REMOVAL OF STRUCTURES FROM FLOOD PLAIN
- REMOVAL OF SLAG MATERIAL FROM SITE

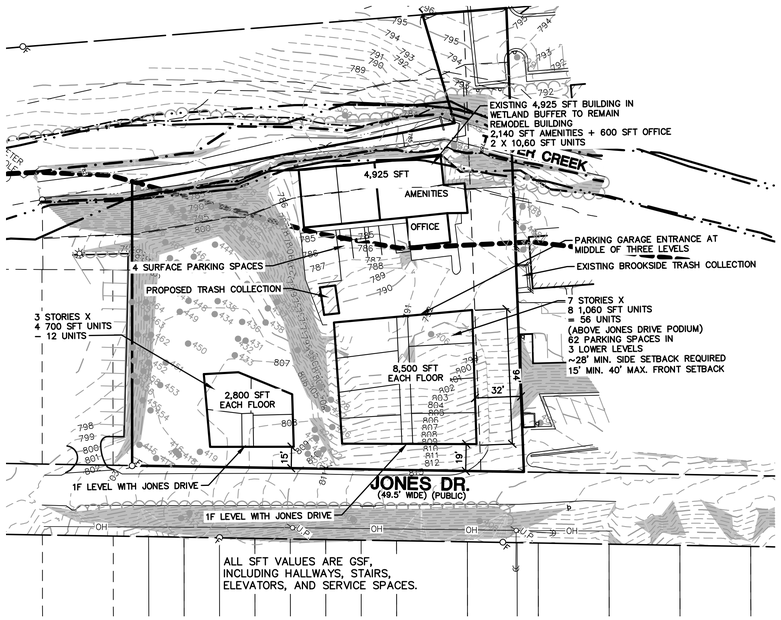
CONS:
- STRONG ARCHITECTURAL PRESENCE ON JONES DRIVE
- EXTENSIVE GRADING TO THE NORTH



PROPOSED SITE LAYOUT

PROS:
- DESIGN WORKS WITH TOPOGRAPHY OF SITE
- ARCHITECTURE ADDRESSES TRAVER CREEK
- LAYOUT ALLOWS FOR PEDESTRIAN ACCESS THROUGHOUT THE SITE
- REMOVAL OF SLAG CONSTRUCTION MATERIAL FROM SITE
- REMOVAL OF STRUCTURES FROM FLOOD PLAIN

CONS:
- REMOVAL OF SIX LANDMARK TREES
- SLIGHT IMPACT TO WETLAND BUFFER



ALTERNATIVE SITE LAYOUT #3

PROS:
- NO DISTURBANCE REQUIRED NEAR TRAVER CREEK (EXCEPT FOR STORMWATER OUTLET PIPE)
- NO DISTURBANCE TO WOODLAND OR LANDMARK TREES.

CONS:
- LARGE AND TALL BUILDING VIOLATES WISHES OF NEIGHBORS IN PUBLIC MEETING (20' HIGHER THAN PROPOSED OPTION)
- LARGE BLOCK BUILDING CREATES SHADOWS BETWEEN TOWER AND SHED BUILDING
- EXISTING SHED BUILDING REMAINS IN WETLAND BUFFER
- AMENITY SPACE IS NOT CONNECTED TO MOST RESIDENTS
- SECOND 12-UNIT BUILDING IS NOT CONNECTED TO AMENITY SPACE OR PARKING
- UNDERGROUND PARKING IS INEFFICIENT WITH 3 LEVELS AND MUCH RAMPING
- EARTHWORK COSTS FOR UNDERGROUND GARAGE WILL BE GREATER.
- UNDERGROUND PARKING REQUIRES PUMPING
- NO VISUAL OR WALKABLE CONNECTION TO TRAVER CREEK FOR MOST RESIDENTS
- ARCHITECTURE AND VIEWS ARE LESS INSIPIRING AND LESS DESIRABLE.

SCALE: 1" = 50'

0 50 100 150

LEGEND

☼	EXIST. LIGHT POLE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
RD	PROP. ROOF DRAIN
	END SECTION
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	SIGN
	STEEP SLOPE

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SITE PLAN FOR REZONING AND CITY COUNCIL
ALTERNATIVES ANALYSIS PLAN

14

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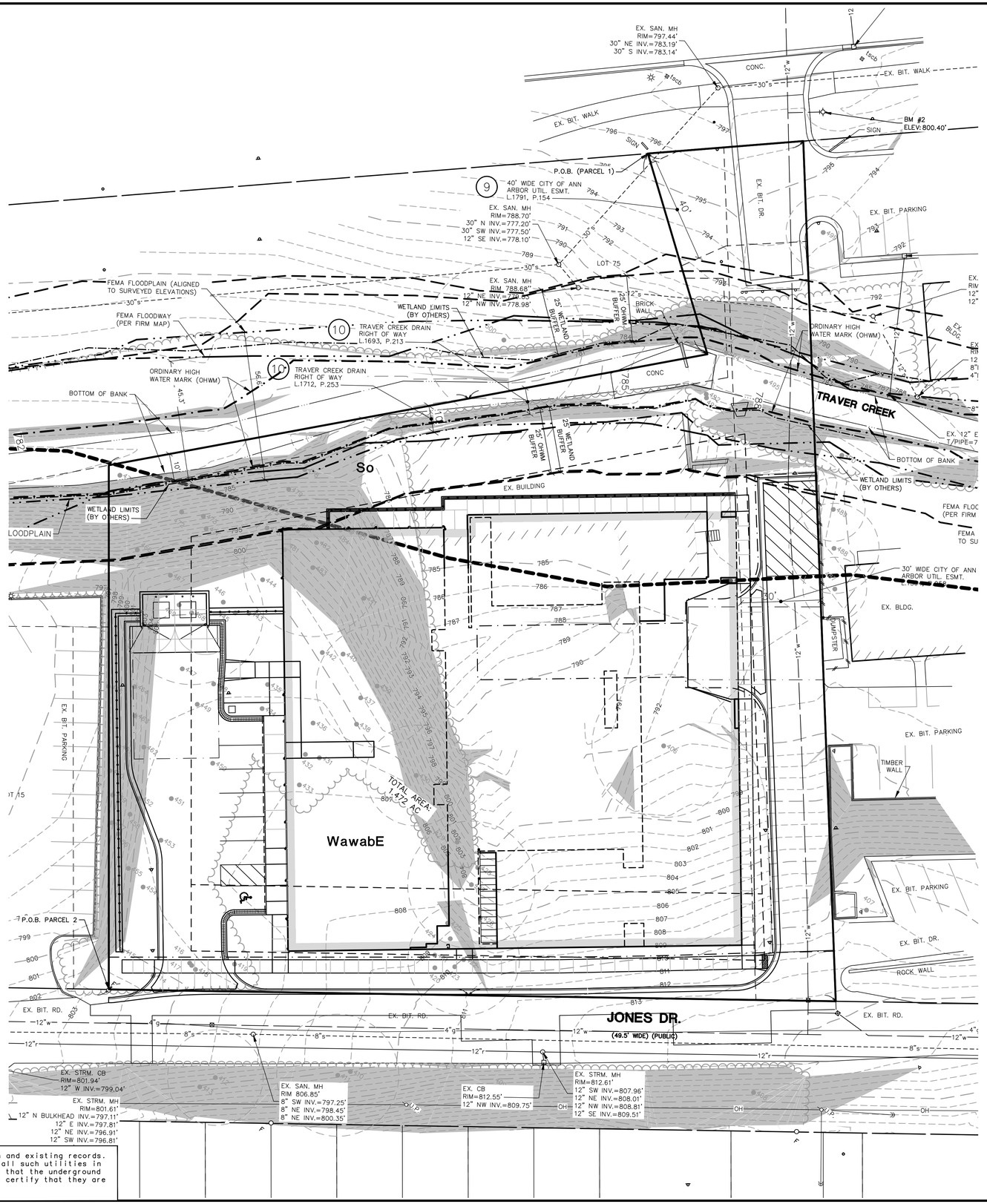
FB:

JOB No. 23022

REVISIONS: REV. DATE:



SCALE: 1" = 20'

0 20 40 60

LEGEND

☼	EXIST. LIGHT POLE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
RD	PROP. ROOF DRAIN
	END SECTION
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	SIGN

GENERAL SOILS DESCRIPTION

BASED ON SOIL SURVEY OF WASHTENAW COUNTY MICHIGAN

So – Sloan silt loam, 0 to 1 percent slopes, frequently flooded.
WawabE – Wawasee loam, 18 to 25 percent slopes.

NOTES

1) THIS SURVEY WAS PREPARED USING ATA/ABSOLUTE TITLE AGENCY TITLE, FILE NO. 81–22860415–ANN, WITH AN EFFECTIVE DATE OF DECEMBER 9, 2022.

2) THE LEGAL DESCRIPTION DESCRIBES THE SAME PROPERTY AS INSURED IN THE TITLE COMMITMENT AND ANY EXCEPTIONS HAVE BEEN NOTED HEREIN.

3) SAID DESCRIBED PROPERTY IS LOCATED WITHIN A 100–YEAR FLOOD PLAIN ZONE PER FLOOD INSURANCE RATE MAP NO. 26161C0261E, WITH AN EFFECTIVE DATE OF APRIL 3, 2012, FOR COMMUNITY NUMBER 260213, IN WASHTENAW COUNTY, STATE OF MICHIGAN, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED.

4) WETLAND LIMITS PROVIDED BY CLIENT SUBCONSULTANT, MARX WETLANDS, LLC., DRAWING, SKETCH AND REPORT DATED MARCH 23, 2023.

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in–service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248–909–2021

1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
NATURAL FEATURES OVERLAY PLAN

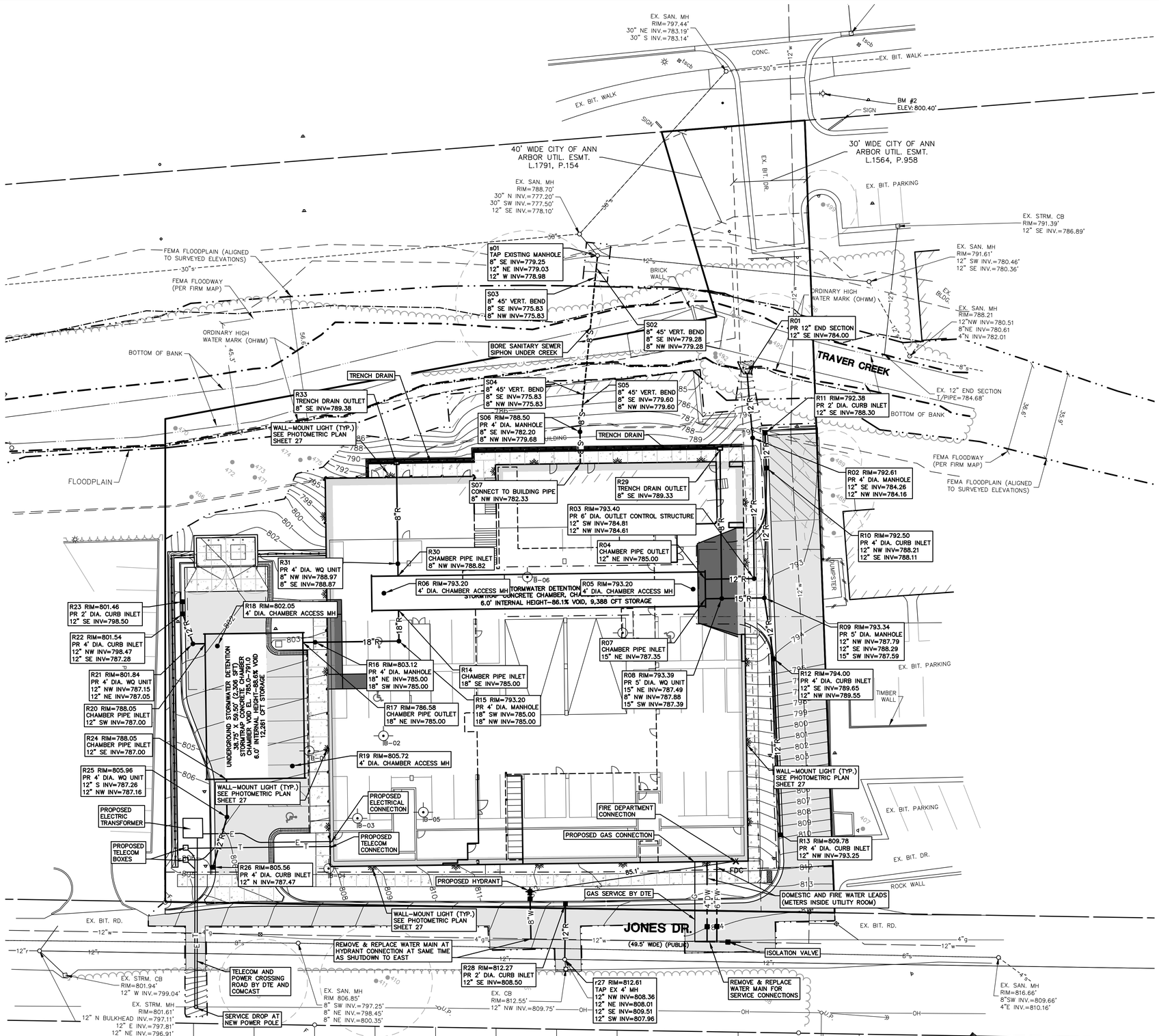
15

DATE: 12/20/24
SHEET 15 OF 27
CADD: KJV
ENG: JAM
PM: RCW
TECH:
23022NF03
FB:

JOB No. 23022
REVISIONS:

REV.	DATE

EGLE
WRP044548 v1.0
Approved
Issued On:03/27/2025
Expires On:03/27/2030



LEGEND

- EXIST. LIGHT POLE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- EXIST. FIBER OPTIC LINE
- EXIST. WATER MAIN
- PROP. WATER MAIN
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- EXIST. GATE VALVE IN BOX
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- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- PROP. ROOF DRAIN
- END SECTION
- PROP. DOWNSPOUT
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- SIGN

SCALE: 1" = 20'

0 20 40 60

NOTES

1) ALL WORK IN JONES DRIVE R.O.W., AND ASSOCIATED WITH DRIVE APPROACHES AND SIDEWALKS, AS WELL AS ALL HYDRANT LEADS AND BUILDING WATER LEADS, SHALL BE PERMITTED AND INSPECTED BY THE CITY OF ANN ARBOR. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS.

2) THE PROJECT WILL HAVE A STORM SEWER OUTLET INSTALLED INTO THE BANK OF TRAVER CREEK (A COUNTY DRAIN). THIS WILL REQUIRE A WCWRC COUNTY DRAIN PERMIT AND AN EGLE/USACE JOINT PERMIT.

3) AS THE PROJECT DRAINS DIRECTLY TO A COUNTY DRAIN, THE STORMWATER MANAGEMENT SYSTEM WILL BE UNDER THE JURISDICTION OF THE WASHTENAW COUNTY WATER RESOURCES COMMISSIONER (WCWRC). THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS.

4) SOIL BORINGS WERE PERFORMED ON THE SITE (SEE SHEET 28) AND INFILTRATING SOILS WERE NOT FOUND. AS SUCH, THE DETENTION SYSTEM IS DESIGNED TO CONTAIN THE 20% DETENTION VOLUME PENALTY. (SEE SHEETS 22–26)

5) IN ORDER TO MEET THE CITY OF ANN ARBOR GREEN STREETS REQUIREMENT, THE ADDED STORMWATER FOR THE WIDENED JONES DRIVE IS BEING COLLECTED AND TREATED IN THE PROJECT STORM SEWER SYSTEM.

6) ALL UNUSED SERVICE LEADS SERVING THE PROJECT PARCELS SHALL BE KILLED PER THE PUBLIC SERVICES STANDARD SPECIFICATIONS AT THEIR RESPECTIVE MAINS WITH THE PROJECT.

SANITARY SEWER MITIGATION CALCULATIONS

PROJECT WILL REMOVE THE TWO OLD ARBOR SPRINGS BOTTLING FACILITY BUILDINGS [6,096 SFT] AND CONSTRUCT A NEW 75–UNIT APARTMENT BUILDING.

DRY–WEATHER SANITARY SEWER FLOWS ARE TAKEN FROM THE CITY OF ANN ARBOR ENGINEERING APPENDIX B TABLE FOR MITIGATION CALCULATIONS.

EXISTING BUILDING:
6,096 SFT x 0.04 GPD/SFT GENERAL INDUSTRIAL SPACE = 244 GPD

PROPOSED BUILDING:
3 STUDIO APARTMENTS 530–538 SFT x 175 GPD/UNIT = 525 GPD
3 1–BEDROOM APARTMENTS 556–600 SFT x 175 GPD/UNIT = 525 GPD
26 1–BEDROOM APARTMENTS 601–690 SFT x 250 GPD/UNIT = 6,500 GPD
38 2–BEDROOM APARTMENTS 745–806 SFT x 250 GPD/UNIT = 9,500 GPD
3 3–BEDROOM APARTMENTS 947–1,169 SFT x 250 GPD/UNIT = 750 GPD
TOTAL: 17,800 GPD

CHANGE RESULTING FROM BUILDING REPLACEMENT:
PROPOSED BUILDING – EXISITNG BUILDING = 17,800 GPD – 244 GPD = +17,556 GPD

PEAK FLOW CHANGE:
+17,556 GPD x 4 (PEAKING FACTOR) x 1.1 (SYSTEM RECOVERY FACTOR) = +77,246 GPD
+77,246 GPD x 1 DAY/24 HR x 1 HR/60 MIN = +53.6 GPM (ROUND TO 54 GPM)

TOTAL PEAK FLOW INCREASE OF 54 GPM.

IF THE CITY PAYMENT OPTION IS CHOSEN, 54 GPM x $3,000 GPM = $162,000

ANTICIPATED CONNECTION CHARGES

DOMESTIC WATER AND SANITARY SEWER ASSUMES "CHARGE WITH CREDIT" AS PARCEL WAS PART OF THE CITY BEFORE 2004, AND UTILITY MAIN WAS BUILT BEFORE 2004. PROJECT ASSUMES A 3–INCH METER WITH A 4–INCH SERVICE LEAD (CITY REQUIRES METER TO BE ONE SIZE SMALLER THAN SERVICE LEAD).

FIRE SERVICE ASSUMES "CHARGE WITHOUT CREDIT" AS PROJECT DOES NOT CONSTRUCT ITS OWN WATER MAIN. CHARGE IS BASED ON TAP AND LEAD SIZE, RATHER THAN METER SIZE.

3–INCH DOMESTIC METER WATER CHARGE (WITH CREDIT): $62,135
CREDIT FOR REMOVAL OF TWO 0.75–INCH METERS: 2 x –$2,696 = –$5,392

SANITARY SEWER CHARGE FOR 3–INCH WATER METER (WITH CREDIT): $146,678
SANITARY CREDIT FOR REMOVAL OF TWO 0.75–INCH METERS: 2 x –$5,982 = –$11,964

6–INCH FIRE WATER TAP CHARGE (WITHOUT CREDIT): $167,546

TOTAL WATER & SEWER CONNECTION CHARGES: $359,003

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248–909–2021

1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
SITE UTILITY PLAN

16

JOB No. 23022
REVISIONS: REV. DATE

DATE: 12/20/24
SHEET 16 OF 27
CADD: KJV
ENG: JAM
PM: RDW
TECH:
23022SP01
FB:

NOTES

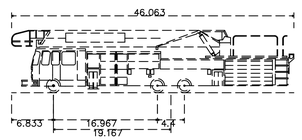
1. Emergency responder radio coverage must meet requirements as specified in the IFC section 510.
2. Fire Command Center and building height shall comply with 2015 IFC Section 508 and all other 2015 IFC and 2015 MBC that apply to a high-rise structure

SCALE: 1" = 20'

0 20 40 60

LEGEND

U.P.	EXIST. UTILITY POLE
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
W	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
	EXIST. BLOW-OFF
	PROP. BLOW-OFF
50'	FIRE HOSE LAY LENGTHS
	FIRE HYDRANT 250' COVERAGE RADIUS
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
FCC	FIRE COMMAND CENTER
KB	KNOX BOX



AAFD Aerial SPH 100

Overall Length	46.063ft
Overall Width	7.833ft
Overall Body Height	10.177ft
Min Body Ground Clearance	0.607ft
Track Width	6.543ft
Lock-to-lock time	4.00s
Max Wheel Angle	32.69°

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
FIRE PROTECTION PLAN

17

JOB No. 23022
REVISIONS:

REV.	DATE

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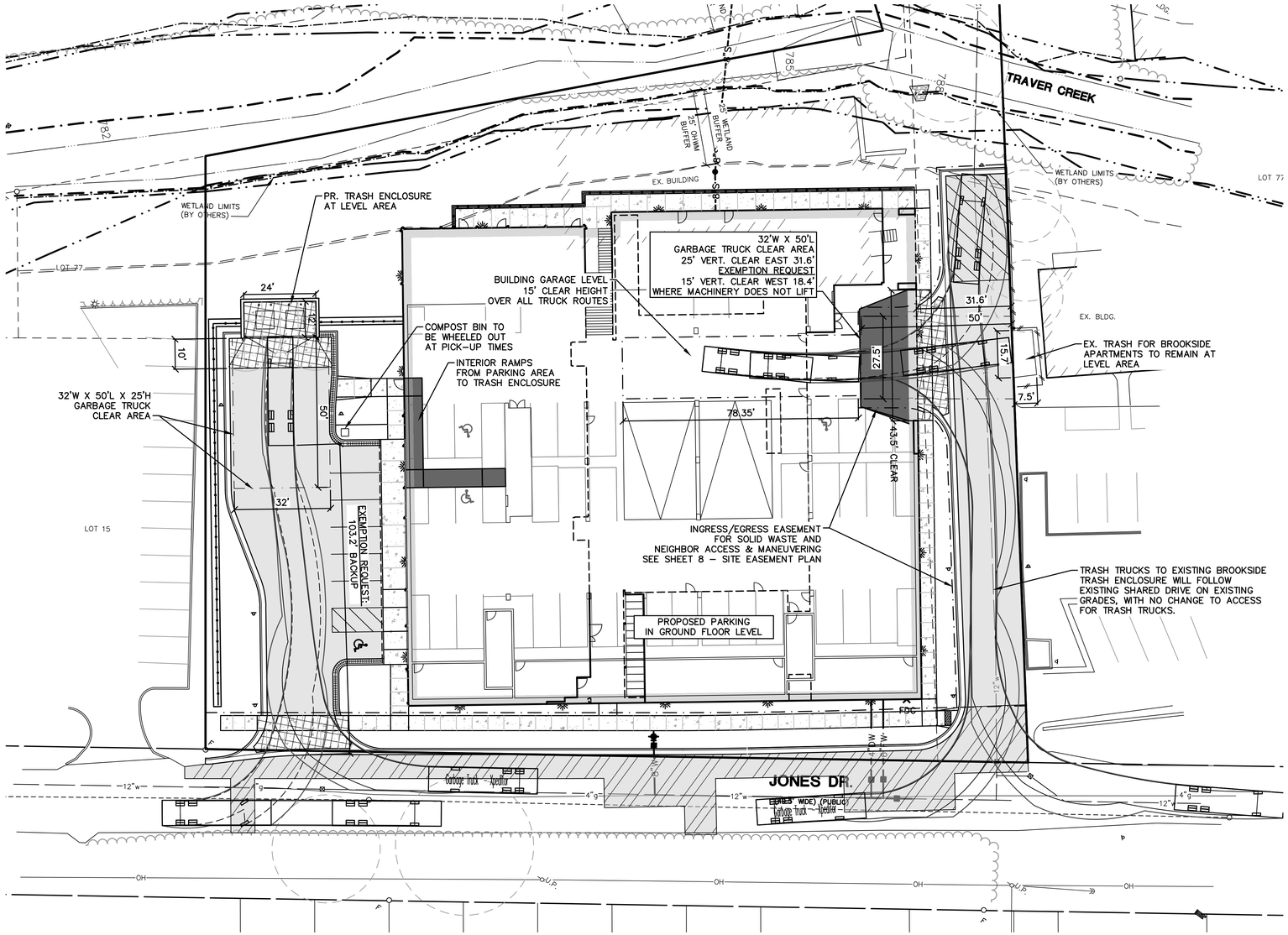
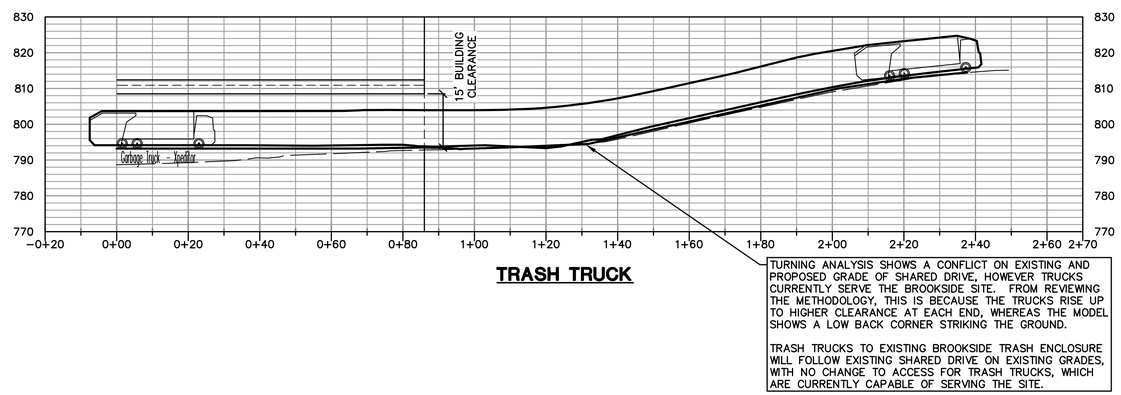
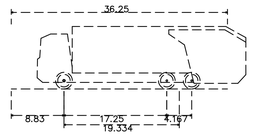




TRASH TRUCK

TURNING ANALYSIS SHOWS A CONFLICT ON EXISTING AND PROPOSED GRADE OF SHARED DRIVE, HOWEVER TRUCKS CURRENTLY SERVE THE BROOKSIDE SITE. FROM REVIEWING THE METHODOLOGY, THIS IS BECAUSE THE TRUCKS RISE UP TO HIGHER CLEARANCE AT EACH END, WHEREAS THE MODEL SHOWS A LOW BACK CORNER STRIKING THE GROUND.

TRASH TRUCKS TO EXISTING BROOKSIDE TRASH ENCLOSURE WILL FOLLOW EXISTING SHARED DRIVE ON EXISTING GRADES, WITH NO CHANGE TO ACCESS FOR TRASH TRUCKS, WHICH ARE CURRENTLY CAPABLE OF SERVING THE SITE.



Garbage Truck – Xpeditor	
Overall Length	36.250ft
Overall Width	8.420ft
Overall Body Height	10.481ft
Min Body Ground Clearance	0.934ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	31.80°

SCALE: 1" = 20'

0 20 40 60

LEGEND

- PROP. 4" HMA PARKING LOT PAVEMENT
- PROP. 5.5" HMA ROADWAY PAVEMENT
- PROP. 4" CONCRETE SIDEWALK
- PROP. 8" CONCRETE PAVEMENT

NOTES

1. The property owner is responsible for all snow and ice removal required for safe access to the enclosures and servicing of the solid waste containers, including access points at Jones Drive, which are shown with excessively steep grades.
2. The city's compost program does not currently extend to multifamily or commercial developments. preliminary space for future multifamily compost collection may be shown on the plans, noting that it is subject to change depending on what the collection needs are determined to be. private compost service can be arranged through My Green Michigan.
3. The pavement surface of the solid waste service route shall be designed to support the weight of solid waste vehicles (79,500 gvwr).

SOLID WASTE NARRATIVE

The 1329/1333 Jones Drive project is located on a site with considerable grade change from the site entry points on the south to the streambanks located on the north - in fact, a 17 foot grade differential occurs between the Jones Drive site entry and the lower level parking area entry, for which the grades are locked in place due to the need to meet the grades along the east side of the site, at the Brookside Apartments property which will remain, and continue to require access from the shared drive between the two properties.

The adjacent Brookside Apartments are currently served by a trash and recycling dumpster at the edge of their property in a flat point near the north of the site, for which the trash and recycling trucks maneuver and access the dumpsters on the subject site Arbor Springs property. This access to the Brookside Apartment waste collection is proposed to be maintained, and the waste collection area itself on the adjacent property will not be disturbed. The subject property (1329/1333 Jones Drive) will have its own trash and recycling dumpsters installed in a City-standard enclosure in another flat point located at the northwest corner of the building.

This existing site grading condition will allow for the lower level parking area to have a 15' clear height maneuvering and turnaround drive under the building, allowing for solid waste truck access to the existing east trash collection area. This will allow for the passage of all road-legal trucks, including trash trucks, as AASHTO specifies a 14-foot clear height for all non-freeway public roadways. Truck turns have been modeled for the City standard solid waste truck.

We had previously shown a passthrough from the west trash collection area to prevent the need for backing up along the west drive as well, however the Fire Marshal denied the request to build the western drive at a slope steeper than 10%, so for that reason we are requesting a backup waiver for that western drive. Pedestrian and vehicular traffic on Jones Drive is low, similar to a typical residential street, and this truck maneuvering should not present a safety hazard or traffic issue any greater than is found by private cars backing out of driveways on residential streets.

It is intended that the neighboring property site access will remain during the bulk of the construction phase, although the existing dumpsters may need to be temporarily relocated during periods of driveway paving and parking garage roof construction, and the contractor will coordinate these temporary relocations with the City Solid Waste and Recycling programs. The existing dumpsters may temporarily be placed in the proposed ADA parking area when necessary for access.

The accompanying calculations show the projected waste and recycling generation rates for 1329/1333 Jones Drive. The specified 6-cubic yard containers are shown to be sufficient to contain the on-site generation. On average the waste container will generally be less than 60% full each week and the recycling container less than 35% full. If additional capacity is required the dumpster area could easily accomodate 8-cubic yard containers. On the adjacent Brookside Apartments property the collection capacity has been proven to be sufficient through years of use, and no modifications for that property are planned.

Solid Waste and Recycling Generation
Proposed Residential Building

Building	Units	Generation per Day	Units
1329/1335 Jones Drive	70		7.5 lb/hhld/day*
			525 total lb/day
		3675 lb/wk	
Recycling	35%	1286 lb/wk	1.84 cyd/wk
Trash	65%	2389 lb/wk	3.41 cyd/wk
Recycling	50%	1929 lb/wk	2.76 cyd/wk
Trash	Peak Factor	3583 lb/wk	5.12 cyd/wk

* CalRecycle lists a range of 4.0-8.6 lbs/hhld/day from various sources
https://www2.calrecycle.ca.gov/wastecharacterization/general/rates

Conversion Factor		
1 CY =	700	*lbs/cyd - USEPA*

Container Requirements	Lb	Container Requirements Trash	Recycling
4 cyd Container	2,800	1.28	0.69
6 cyd Container	4,200	0.85	0.46
8 cyd Container	5,600	0.64	2.76

Assume one 6 cyd each for both waste and recycling, once per week

Container Sizes	Dimensions
4 cyd Container	70" X 50" X 61"
6 cyd Container	71" X 68" X 70"
8 cyd Container	82" X 82" X 74"

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
SOLID WASTE MANAGEMENT PLAN

18

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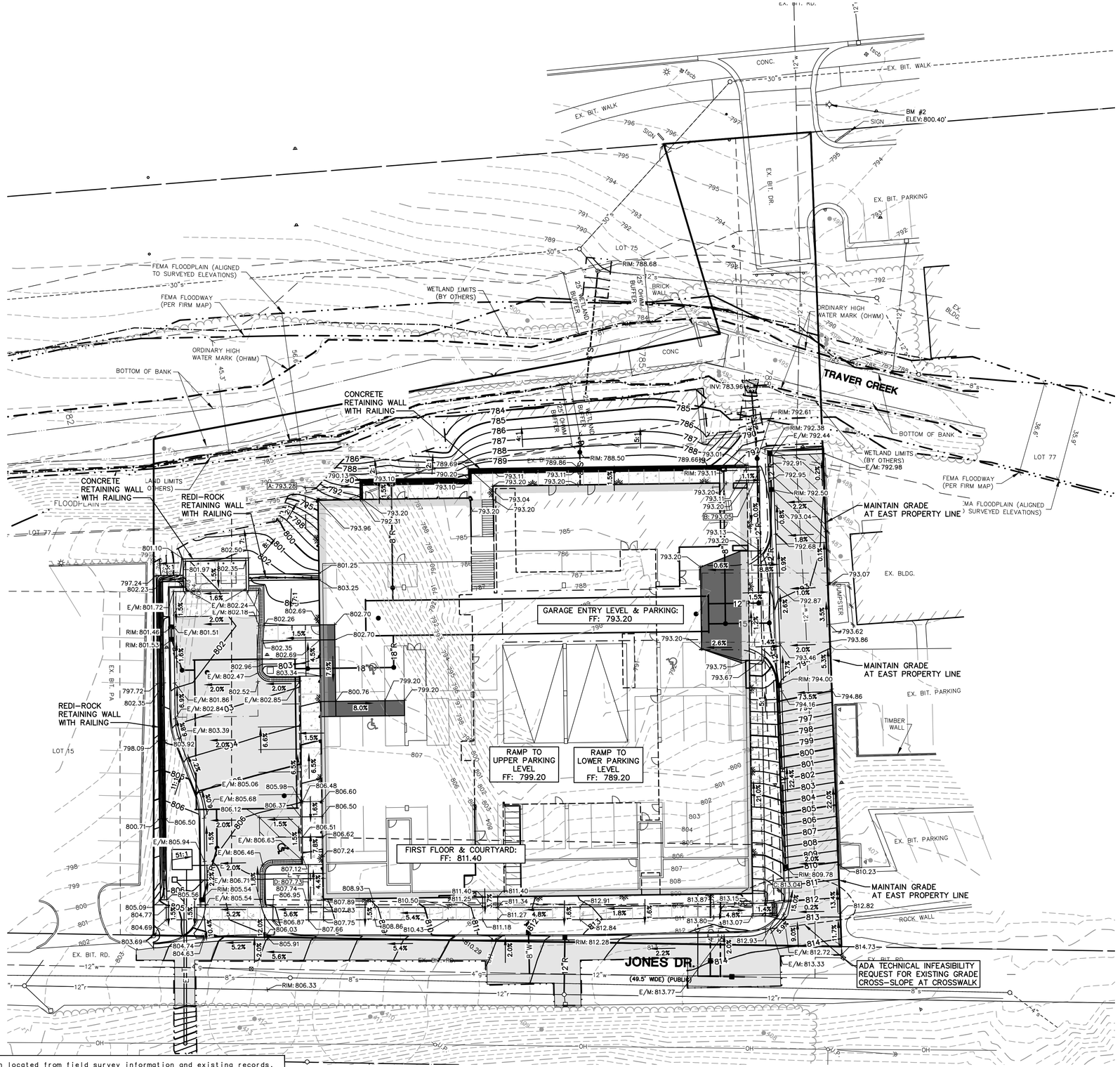

SCALE: 1" = 20'

0 20 40 60

LEGEND

838	PROP. CONTOUR
36.60x	PROP. SPOT ELEVATION
	EXIST. LIGHT POLE
	PROP. LIGHT POLE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
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	PROP. GATE VALVE IN BOX
	REDUCER
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
RD	PROP. ROOF DRAIN
	END SECTION
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	SIGN
	SILTFENCE
FF	FINISH FLOOR ELEVATION

NOTES

1. PROJECT WILL REQUEST AN ADA INFEASIBILITY WAIVER FOR THE PUBLIC SIDEWALK CROSSING THE EAST DRIVE APPROACH: THE EXISTING GRADES AT THIS LOCATION ARE VERY STEEP AND ARE ALREADY GREATER THAN WHAT IS ALLOWED FOR A NEW DRIVE (14.5% AT THE WALKWAY CROSSING AND 22.4% FURTHER INTO THE SITE). PLACING A FLATTER CROSSING HERE WOULD STEEPEN THE 22.4% SITE GRADE FURTHER TO APPROXIMATELY 24%, AND WOULD CREATE SHARP ANGLE POINTS THAT CATCH THE UNDERSIDES OF PERSONAL VEHICLES. THE EXISTING DRIVE ALSO CANNOT BE REGRADED AS IT MUST CONTINUE TO MEET THE ACCESS POINTS OF THE ADJACENT APARTMENT COMPLEX, AND ADDITIONALLY THE SIDEWALK IN FRONT OF THE PROPOSED DEVELOPMENT WOULD NOT YET CONNECT TO ANYTHING ON EITHER SIDE.

   WE BELIEVE THIS CONSTRAINTS MEET THE ADA REQUIREMENTS FOR A TECHNICAL INFEASIBILITY DUE TO EXISTING CONDITIONS, AND PROPOSE REPAVING THE DRIVE APPROACH AT THIS LOCATION IN ITS EXISTING FORM AND GRADES.

2. THE PROJECT WILL HAVE APPROXIMATELY 8,135 CFT OF CUT AND 1,715 CFT OF FILL, FOR A NET CUT OF 6,420 CFT. THIS REPRESENTS A SURFACE-TO-SURFACE COMPARISON WITH NO EXPANSION OR COMPACTION FACTORS.

3. THE PROJECT DISTURBS 50,251 SFT (1.15 AC) OF LAND, WHICH IS 78.4% OF THE SITE PARCEL AREA OF 64,135 SFT (1.47 AC)

PROPERTY OWNER HAS AGREED TO ACCEPT STORMWATER ONTO THEIR PARCEL.

AVERAGE FINISH GRADE CALCULATION:

5' FROM BUILDING WALL, HIGHEST AND LOWEST POINT OF EACH SIDE (AT CORNERS FOR THIS SITE)

A: 792.52
B: 792.69
C: 813.32
D: 807.73

AVERAGE FINISH GRADE (AFG): 801.56

LOWER PARKING LEVEL FF: 789.70 – 11.86' BELOW AFG
GROUND FLOOR & PARKING FF: 793.70 – 7.86' BELOW AFG
UPPER PARKING LEVEL FF: 799.70 [10' HT.] – 1.86' BELOW AFG
FIRST FLOOR & COURTYARD FF: 811.40 [17.70' HT.] – 9.84' ABOVE AFG
EAST APARTMENTS ROOF: 844.40 [33.00' HT.] – 42.84' ABOVE AFG
WEST APARTMENTS ROOF: 866.07 [54.67' HT.] – 64.51' ABOVE AFG

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1329 / 1333 JONES DRIVE

CITY COUNCIL

SITE PLAN FOR REZONING AND CITY COUNCIL GRADING PLAN

19

DATE: 12/20/24
SHEET 19 OF 27
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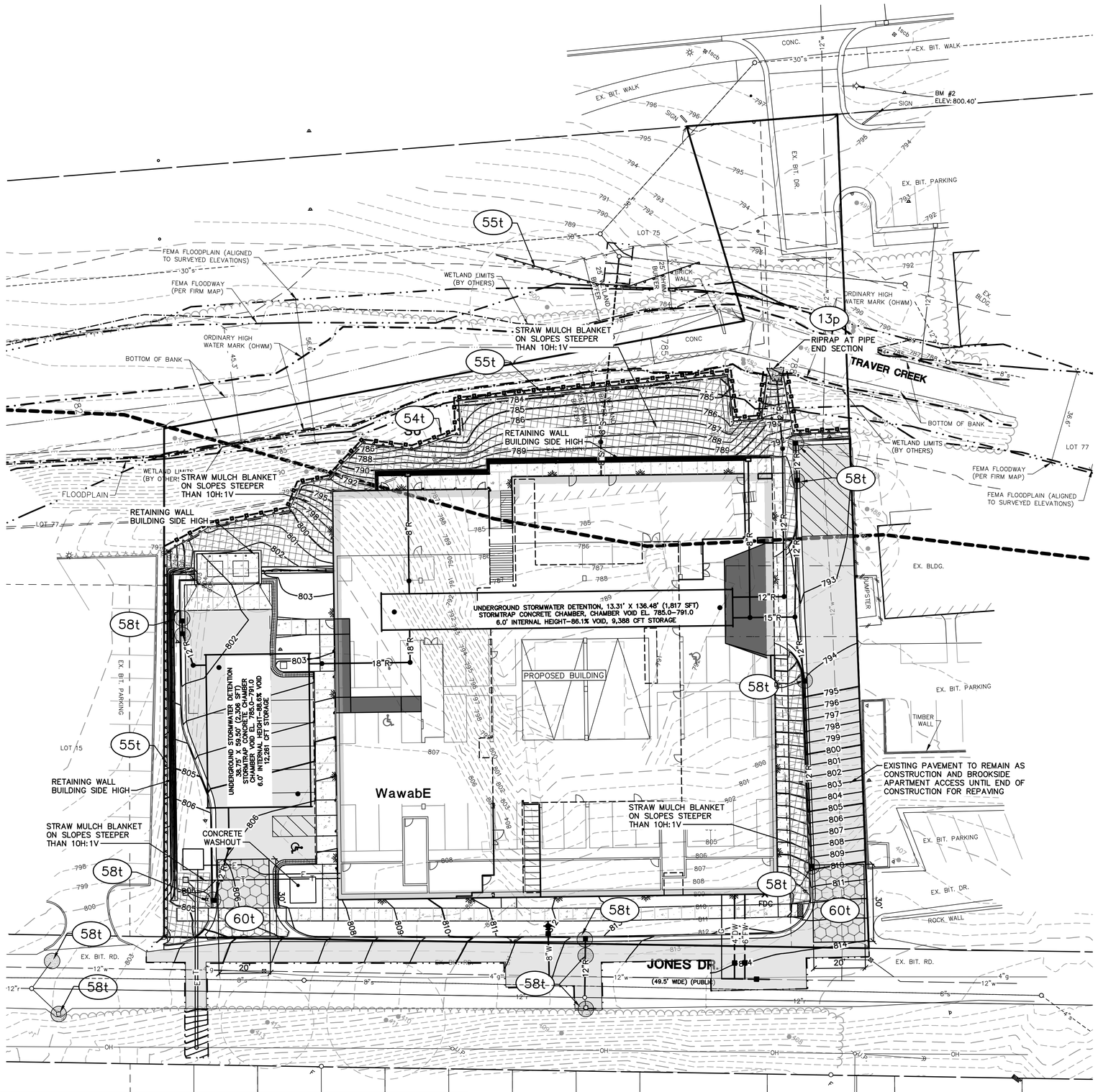

LEGEND

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- END SECTION
- PROP. DOWNSPOUT
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT

SCALE: 1" = 20'

0 20 40 60

SOIL EROSION CONTROL NOTES

1. ALL SOIL EROSION CONTROL MEASURES SHALL COMPLY WITH THE CURRENT CITY OF ANN ARBOR ORDINANCES, WASHTENAW COUNTY STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENTATION CONTROL, AND STATE OF MICHIGAN "SOIL EROSION AND SEDIMENTATION CONTROL ACT – P.A. 347".
2. PRIOR TO COMMENCING EARTHMOVING OPERATIONS, THE GRADING CONTRACTOR SHALL INSTALL THE TEMPORARY CATCH BASIN FILTER(S) SHOWN ON THE PLANS.
3. THE REMOVAL OF TRAPPED SEDIMENT AND THE CLEANOUT OR REPLACEMENT OF CLOGGED STORM MAY BE NECESSARY AFTER EACH STORM EVENT DURING THE PROJECT.
4. ALL SILT FENCE SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. IF AT ANY TIME THE DEPTH OF SILT AND SEDIMENT COMES TO WITHIN 12" OF THE TOP OF ANY SILT FENCE, ALL SILT AND SEDIMENT SHALL BE REMOVED TO ORIGINAL GRADE.
5. ONLY UPON STABILIZATION OF ALL DISTURBED AREAS MAY THE TEMPORARY GRAVEL FILTERS BE REMOVED. ALL STORM SEWERS MUST BE ALSO CLEANED OF ALL SEDIMENT.
6. ALL INLETS AND CATCH BASINS WILL HAVE SEDIMENT FILTERS INSTALLED AFTER THEIR CONSTRUCTION. THESE FILTERS WILL BE MAINTAINED UNTIL ALL AREAS AROUND THE STRUCTURE HAVE BEEN STABILIZED.
7. THE CONTRACTOR WILL MAINTAIN ALL NECESSARY SOIL EROSION CONTROL DEVICES UNTIL SOIL STABILIZATION HAS OCCURRED.
8. APPROPRIATE EMERGENCY ACCESS WILL BE PROVIDED DURING CONSTRUCTION.
9. THE ESTIMATED COST OF SOIL EROSION CONTROL MEASURES IS $12,000.
10. THE ESTIMATED COST TO PROTECT ALL SOIL SURFACES FROM EROSION SHOULD CONSTRUCTION DISCONTINUE IS $8,000.
11. DEWATERING OPERATIONS DURING CONSTRUCTION, IF NECESSARY, MUST BE DONE PER CITY REQUIREMENTS INCLUDING SEDIMENT CONTROL AND DISPOSAL.
12. FINAL LOCATIONS AND DIMENSIONS OF THE MUD TRACKING MAT AND CONCRETE WASHOUT AREA ARE TO BE DETERMINED BY THE CONTRACTOR SUBJECT TO A CITY APPROVAL.
13. THE PROJECT DISTURBS 50,251 SFT (1.15 AC) OF LAND, WHICH IS 78.4% OF THE SITE PARCEL AREA OF 64,135 SFT (1.47 AC)
14. ESTIMATED PROJECT EARTHWORK IS 8,135 CFT OF CUT AND 1,715 CFT OF FILL, WITH A NET CUT OF 6,420 CFT. THIS NUMBER IS AN ESTIMATE ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION ESTIMATING PURPOSES.
15. THE PROJECT WORK AREA IS LOCATED, AT IT'S CLOSEST POINT, 5' FROM THE NEAREST WATER OF THE STATE, TRAVER CREEK, LOCATED ON THE PROJECT SITE AT THE STORM OUTLET AT THE NORTH OF THE BUILDING.

MAINTENANCE PROGRAM FOR SOIL EROSION CONTROLS

1. DURING CONSTRUCTION IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE SOIL EROSION CONTROL MEASURES. FOLLOWING CONSTRUCTION THE OWNER SHALL BE RESPONSIBLE FOR MAINTAINING THE PERMANENT SOIL EROSION CONTROL MEASURES. MAINTENANCE RESPONSIBILITIES SHALL BECOME PART OF ANY SALES OR EXCHANGE AGREEMENT FOR THE LAND ON WHICH THE PERMANENT SESC MEASURES ARE LOCATED.

SOIL EROSION CONTROL MEASURES

t = temporary p = permanent

5	SEEDING	55	GEOTEXTILE SILT FENCE	59	C.B./INLET FILTER
54	CONSTRUCTION FENCE OR SNOW FENCE	58	CURB INLET FILTER	60	MUD TRACKING MAT

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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248-909-2021

1329 / 1333 JONES DRIVE

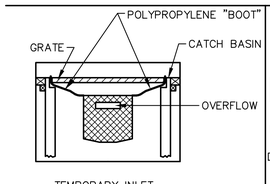
SITE PLAN FOR REZONING AND CITY COUNCIL
SOIL EROSION AND SEDIMENTATION CONTROL PLAN

20

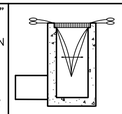
DATE: 12/20/24
SHEET 20 OF 27
CADD: KJV
ENG: JAM
PM: ROW
TECH:
230225E01
FB:

REV. DATE

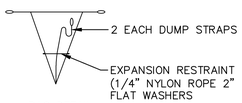
JOB No. 23022
REVISIONS:



TEMPORARY INLET
SEDIMENT FILTER



INSTALLATION DETAIL



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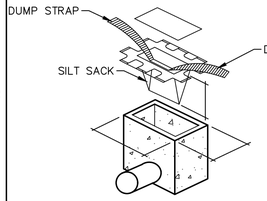


NOTE:
TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVED CATCH BASINS OR STORM INLETS. INLET FILTER TO BE SIMILAR TO "STREAMGUARD" AS MANUFACTURED BY STORMWATER SERVICES CORPORATION (206-767-0441) OR "SILTSACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS, INC. (800-448-3636) OR "CATCH-ALL BY MARATHON MATERIALS, INC. (248-596-4301). INSPECT FILTER WEEKLY AND CLEAN AS NEEDED.

EROSION CONTROL INLET FILTER, SPECIAL

NOT TO SCALE

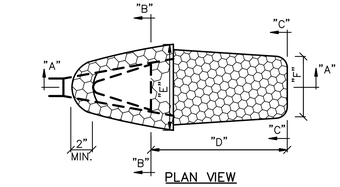
SILT FENCE DETAIL (55t)

NOT TO SCALE
BLOCK NAME: SILT FENCE DETAIL-1-55

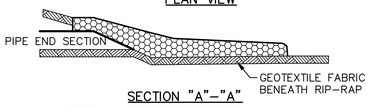
GRAVEL MUD TRACKING MAT (60t)

NOT TO SCALE

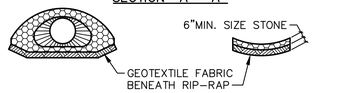
PIPE ø	D	E	F	SQ. YDS.
12"	5'-0"	6'-6"	3'-0"	4
15"	5'-0"	7'-0"	3'-0"	4
18"	5'-0"	7'-6"	3'-6"	4
21"	5'-6"	8'-0"	4'-0"	5
24"	6'-0"	8'-6"	4'-6"	6
27"	6'-6"	9'-0"	5'-0"	7
30"	7'-0"	9'-6"	5'-6"	8
33"	7'-6"	10'-3"	5'-6"	9
36"	8'-0"	10'-9"	6'-0"	10
42"	9'-0"	11'-9"	6'-6"	12
48"	10'-0"	13'-0"	7'-0"	14



PLAN VIEW



SECTION "A"-"A"



SECTION "B"-"B" SECTION "C"-"C"

RIP-RAP DETAIL (13p)

NOT TO SCALE

STORMWATER MAINTENANCE SCHEDULE

DURING CONSTRUCTION:

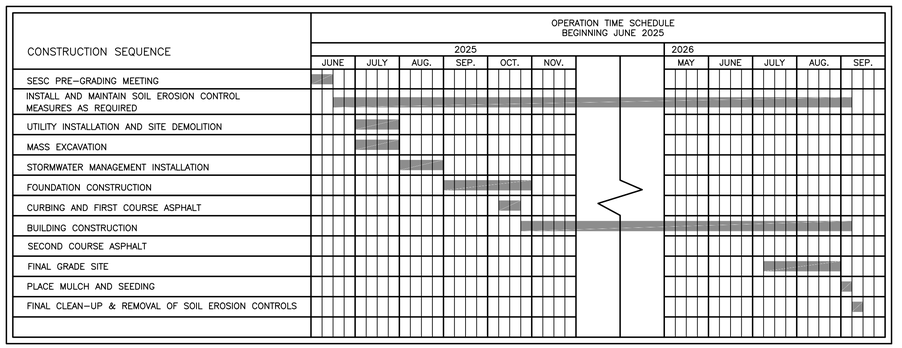
TASK	Paved Areas	Pervious Areas	Riprap & Silt Fence	Storm Pipes	Catch Basins and Manholes	Inlet Grates	Flow Restriction Devices	Filtration Devices	Basins	SCHEDULE	PROJECT COST
Inspect for sediment accumulation	X		X	X	X		X	X	X	Weekly	$500.00
Removal of sediment accumulation	X		X	X	X		X	X	X	As needed* & prior to turnover	$2,000.00
Inspect for floatables and debris				X	X	X	X	X	X	Quarterly	$200.00
Cleaning for floatables and debris				X	X	X	X	X	X	Quarterly and at turnover	$300.00
Inspect for erosion		X	X							Weekly	$500.00
Reestablish permanent vegetation on eroded slopes		X								As needed* & prior to turnover	$500.00
Clean drives and parking lots	X									Weekly or as determined by permitting agency	$1,200.00
Water disturbed areas to provide dust control	All disturbed areas of site									As needed* & prior to turnover	$1,000.00
Inspect structural elements during wet weather and compare to as-built plans (by a professional engineer reporting to the owner)			X	X			X	X	X	Annually and at turnover	$500.00
Make adjustments or replacements as determined by wet weather inspection			X	X			X	X	X	As needed* & prior to turnover	$1,200.00
										Total Estimated Project Phase Cost	**$7,900.00**

* "as needed" means when sediment has accumulated to a minimum of one foot depth.
Maintenance of soil erosion and sedimentation during construction to be the reponsibility of the general contractor.

PERMANENT MAINTENANCE:

TASK	Paved Areas	Pervious Areas	Riprap	Storm Pipes	Catch Basins and Manholes	Inlet Grates	Flow Restriction Devices	Filtration Devices	Basins	SCHEDULE	ANNUAL COST
Inspect for sediment accumulation	X		X	X	X		X	X	X	Annually	$100.00
Removal of sediment accumulation	X		X	X	X		X	X	X	Annually, and as needed*	$300.00
Inspect for floatables and debris				X	X	X	X	X	X	Annually	$100.00
Cleaning for floatables and debris				X	X	X	X	X	X	Annually, and as needed*	$100.00
Inspect and repair any infiltration basin damage									X	Annually, and after each storm of 1-inch or more	$600.00
Inspect for erosion		X	X							Every six months	$50.00
Reestablish permanent vegetation on eroded slopes		X								As needed*	$200.00
Clean drives and parking lots	X									Annually	$100.00
Mowing		X								Weekly during growing season* * Mowing within 25' of storm basin is only allowed twice per year.	$100.00
Inspect structural elements during wet weather and compare to as-built plans (by a professional engineer reporting to the owner)			X	X			X	X	X	Annually	$100.00
Make adjustments or replacements as determined by wet weather inspection			X	X			X	X	X	As needed*	$100.00
Keep records of all inspections and maintenance										Annually	$50.00
Keep records of all costs for inspections,										Annually	$50.00
Property owner to review cost-effectiveness of the preventative maintenance program and make necessary adjustments.										Annually	$100.00
Onwer to hire a professional engineer to carry out emergency inspections upon identification of severe problems.										As needed*	$50.00
										Total Estimated Annual Maintenance Cost	$2,100.00

* "as needed" means when sediment has accumulated to a minimum of one foot depth.
Permanent maintenance of soil erosion and sedimentation control to be the responsibility of Greenspan Brothers Management Company or current property owner.
NOTE: No chemicals are allowed in stormwater features or buffer zones with the following exception: Invasive species may be treated with chemicals by a certified applicator.



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1329 / 1333 JONES DRIVE

SESC DETAILS

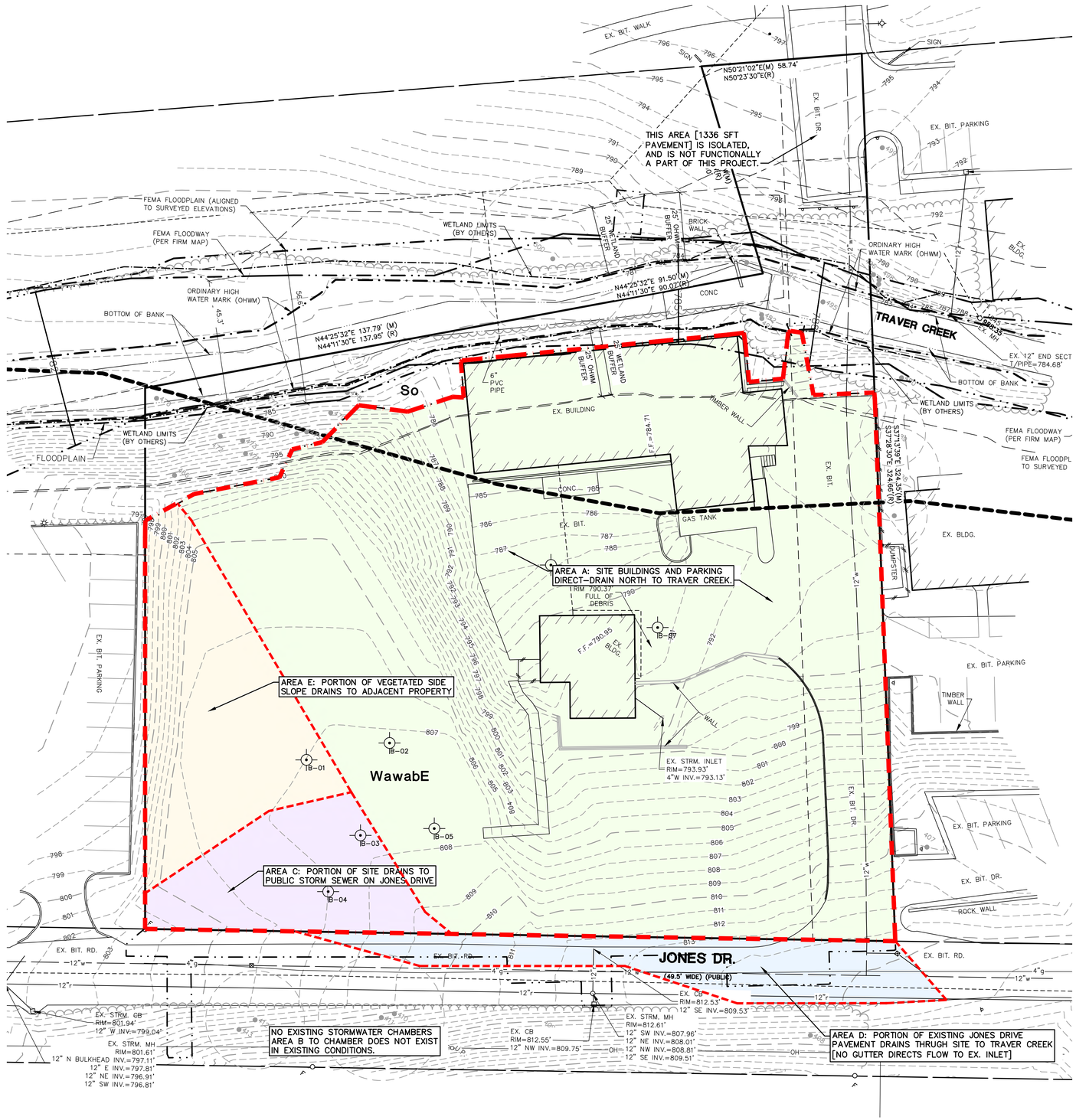
21

JOB No. 23022

REVISIONS:
SITE PLAN SUBMITTAL 1
SITE PLAN SUBMITTAL 2

REV.	DATE
	05/15/24
	12/20/24

DATE: 12/20/24
SHEET 21 OF 27
CADD: CMW
ENG.: JAM
PM: RCW
TECH:
F23022D101
FB:



SCALE: 1" = 20'

0 20 40 60

LEGEND

838	EXIST. CONTOUR
838	PROP. CONTOUR
×836.2	EXIST. SPOT ELEVATION
36.60x	PROP. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
U.P.	EXIST. UTILITY POLE W/ TRANS.
	GUY WIRE
	ELEC. TRANSFORMER
	EXIST. AC UNIT
	EXIST. GENERATOR
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
	PROP. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
	REDUCER
	EXIST. BLOW-OFF
	PROP. BLOW-OFF
p.i.v.	POST INDICATOR VALVE
P.I.V.	POST INDICATOR VALVE
	THRUST BLOCK
KB	PROP. KNOXBOX
fdc	EXIST. FIRE DEPARTMENT CONNECTION
FDC	PROP. FIRE DEPARTMENT CONNECTION
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
	EXIST. BEEHIVE INLET
	PROP. BEEHIVE INLET
RD	PROP. ROOF DRAIN
	END SECTION
	HEAD WALL
	CULVERT
ds	EXIST. DOWNSPOUT
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	C/L OF DITCH
	DRAINAGE DIRECTION
	SIGN
	SINGLE TREE
	TREE OR BRUSH LIMIT
	FENCE
	SILTFENCE
	LIMITS OF DISTURBANCE
	CONSTRUCTION FENCE
FF	FINISH FLOOR ELEVATION
GF	GARAGE FLOOR ELEVATION
BFF	BASEMENT FINISH FLOOR ELEVATION
	DRAINAGE BOUNDARY

1329/1335 Jones Drive Stormwater Calculations

December 5, 2024

Roof CN: 98
Pavement CN: 98
Vegetation "B" CN: 61 Type B Fox Sandy Loam
Vegetation "D" CN: 80 Type B/D Sloan Silt Loam (use Type D undrained)

EXISTING CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	6,085	12,847	23,041	1,725	18,932	43%	43,698	33,988
Area B: To chambers, then Traver Creek	-	-	-	-	-	0%	-	-
Area C: To Jones Drive Storm Sewers	-	-	3,535	-	-	0%	3,535	2,156
Area D: Undisturbed Jones Dr. Toward Site	-	2,754	600	-	2,754	82%	3,354	3,065
Area E: Sheet Flow to West Property	-	-	5,715	-	-	0%	5,715	3,486
GRAND TOTAL	**6,085**	**15,601**	**32,891**	**1,725**	**21,686**	**39%**	**56,302**	**42,696**

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
EXISTING STORMWATER PLAN

22

DATE: 12/20/24
SHEET 22 OF 27
CADD: KJV
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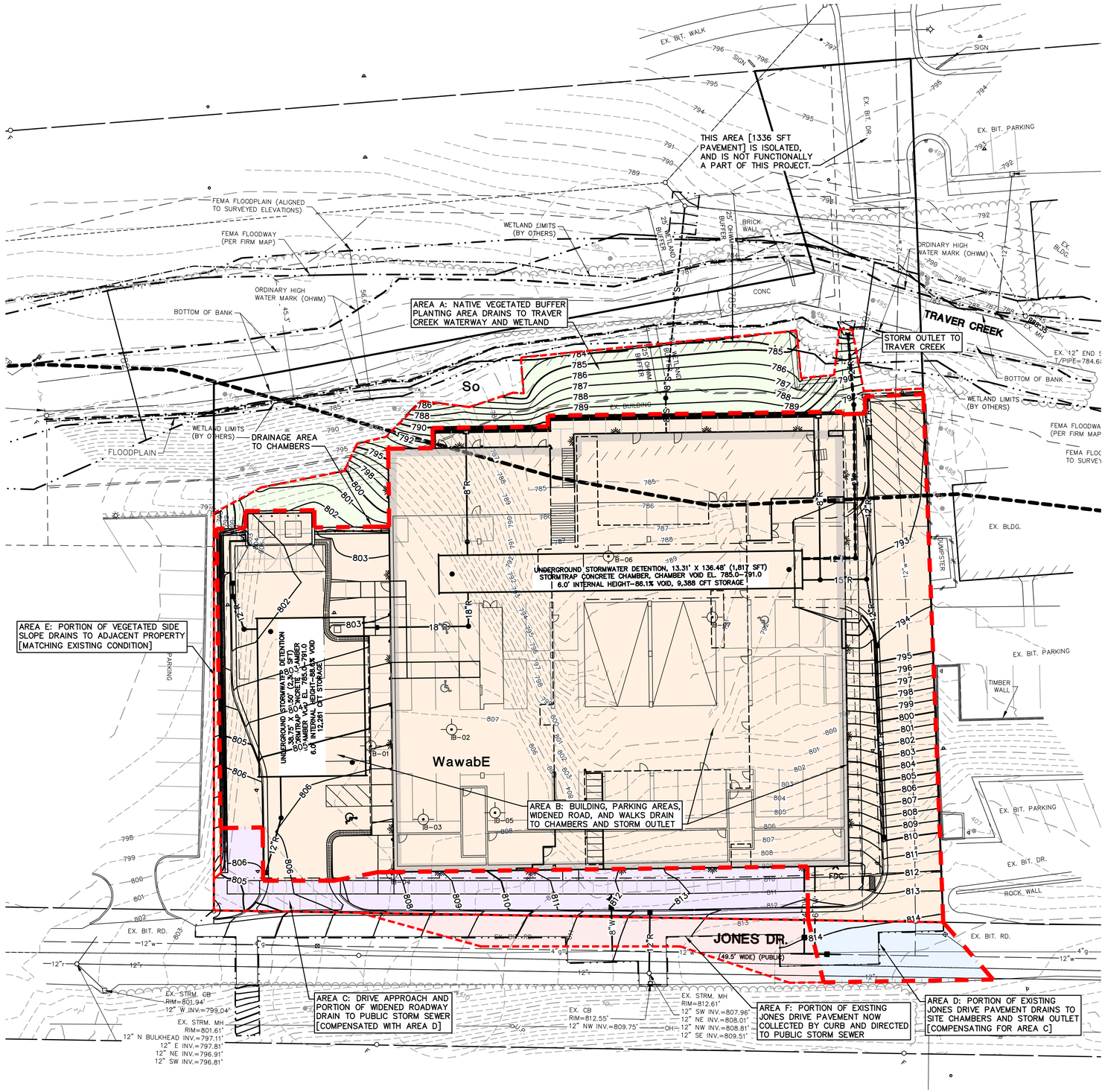
TECH:
23022DR01
FB:

JOB No. 23022

REVISIONS: REV. DATE:



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f.o.	EXIST. FIBER OPTIC LINE
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W	PROP. WATER MAIN
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	PROP. HYDRANT
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	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
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FF	FINISH FLOOR ELEVATION
GF	GARAGE FLOOR ELEVATION
BFF	BASEMENT FINISH FLOOR ELEVATION
	DRAINAGE BOUNDARY

SCALE: 1" = 20'

0 20 40 60

1329/1335 Jones Drive Stormwater Calculations
December 5, 2024

Roof CN: 98
Pavement CN: 98
Vegetation "B" CN: 61 Type B Fox Sandy Loam
Vegetation "D" CN: 80 Type B/D Sloan Silt Loam (use Type D undrained)

EXISTING CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	6,085	12,847	23,041	1,725	18,932	43%	43,698	33,988
Area B: To chambers, then Traver Creek	-	-	-	-	-	0%	-	-
Area C: To Jones Drive Storm Sewers	-	-	3,535	-	-	0%	3,535	2,156
Area D: Undisturbed Jones Dr. Toward Site	-	2,754	600	-	2,754	82%	3,354	3,065
Area E: Sheet Flow to West Property	-	-	5,715	-	-	0%	5,715	3,486
GRAND TOTAL	**6,085**	**15,601**	**32,891**	**1,725**	**21,686**	**39%**	**56,302**	**42,696**

PROPOSED CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	-	-	1,151	3,782	-	0%	4,933	3,728
Area B: To chambers, then Traver Creek	27,604	13,753	2,292	221	41,357	94%	43,870	42,105
Area C: To Jones Drive Storm Sewers	-	1,817	2,106	-	1,817	46%	3,923	3,065
Area D: Undisturbed Jones Dr. Toward Site	-	1,283	-	-	1,283	100%	1,283	1,257
Area E: Sheet Flow to West Property	-	-	242	-	-	0%	242	148
Area F: Ex. Jones Dr. into Jones Storm Sewers	-	2,051	-	-	2,051	100%	2,051	2,010
Area B+D: Total to Chambers	*27,604*	*15,036*	*2,292*	*221*	*42,640*	*94%*	*45,153*	*43,362*
GRAND TOTAL	**27,604**	**18,904**	**5,791**	**4,003**	**46,508**	**83%**	**56,302**	**52,313**

CHANGE IN CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	(6,085)	(12,847)	(21,890)	2,057	(18,932)		(38,765)	(30,261)
Area B: To chambers, then Traver Creek	27,604	13,753	2,292	221	41,357		43,870	42,105
Area C: To Jones Drive Storm Sewers	-	1,817	(1,429)	-	1,817		388	909
Area D: Undisturbed Jones Dr. Toward Site	-	(1,471)	(600)	-	(1,471)		(2,071)	(1,808)
Area E: Sheet Flow to West Property	-	-	(5,473)	-	-		(5,473)	(3,339)
Area F: Ex. Jones Dr. into Jones Storm Sewers	-	2,051	-	-	2,051		2,051	2,010
Area B+D: Total to Chambers	*27,604*	*15,036*	*2,292*	*221*	*42,640*		*45,153*	*43,362*
GRAND TOTAL	**21,519**	**3,303**	**(27,100)**	**2,278**	**24,822**		**-**	**9,617**

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1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
PROPOSED STORMWATER PLAN

23

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JOB No. 23022

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1329/1335 Jones Drive
STORMWATER NARRATIVE
Midwestern Consulting Project # 23022
December 5, 2024

This redevelopment project follows the the 2016 WCWRC design criteria, for the portion of the site being developed. The undisturbed vegetated areas along Traver Creek count as "Self-Crediting BMPs", and the northern drive to Plymouth Road is isolated from the remainder of the project, and only serves the adjacent apartment complex which is not being re-developed. It is functionally not a part of this project, and we request treating it as another "Self-Crediting BMP".

This project involves the redevelopment of the Arbor Springs facility into an apartment building owned by a single entity, with the bulk of the parking located under the building footprint. Due to site constraints including existing water main easements, detention will be located underground, under the parking level. Soil borings indicate clay soils with no ability to infiltrate, so we are proposing to add the 20% volume penalty, and outlet the stormwater to Traver Creek. As this is a County Drain, a County Drain Use permit is required, and the project stormwater design will fall under WCWRC review and jurisdiction.

The portion of Jones Drive in front of the building will be widened to 26 feet to accommodate aerial fire truck access. This was previously shown entering the site's stormwater system, however by City Engineer comment request, this water will now be taken into the City's public storm sewer system. A portion of undisturbed roadway will be taken into the site's stormwater system at the eastern drive, as a balance for this.

A small portion of vegetated slope on the west side of the property will continue to drain directly to the neighbor property, however this area will be greatly reduced from the existing condition.

Stormwater will be pretreated for quality prior to entering the detention chambers with packaged water quality units (Contech CDS units or approved equivalent), and outlet flow rate will be controlled with an underground structure with orifices in a weir wall.

A USACE/EGLE Joint Permit will be obtained for the minor floodplain and wetland impacts, including the removal of a building at the edge of the floodplain, and the installation of the stormwater outlet into the bank of Traver Creek.

Outlet Certification:
Based upon the data and criteria outlined above, I hereby certify that the existing drain is the only reasonably achievable stormwater outlet for the proposed stormwater management system, and that the existing drain has sufficient capacity to serve as an adequate outlet for the proposed system, without detriment to or diminution of the drainage serve that the existing outlet presently provides.

Signed: _____

Jeremy Matthei, PE #62010 53590

STATE OF MICHIGAN
JEREMY A. MATTHEI
ENGINEER
NO. 53590
LICENSED PROFESSIONAL ENGINEER

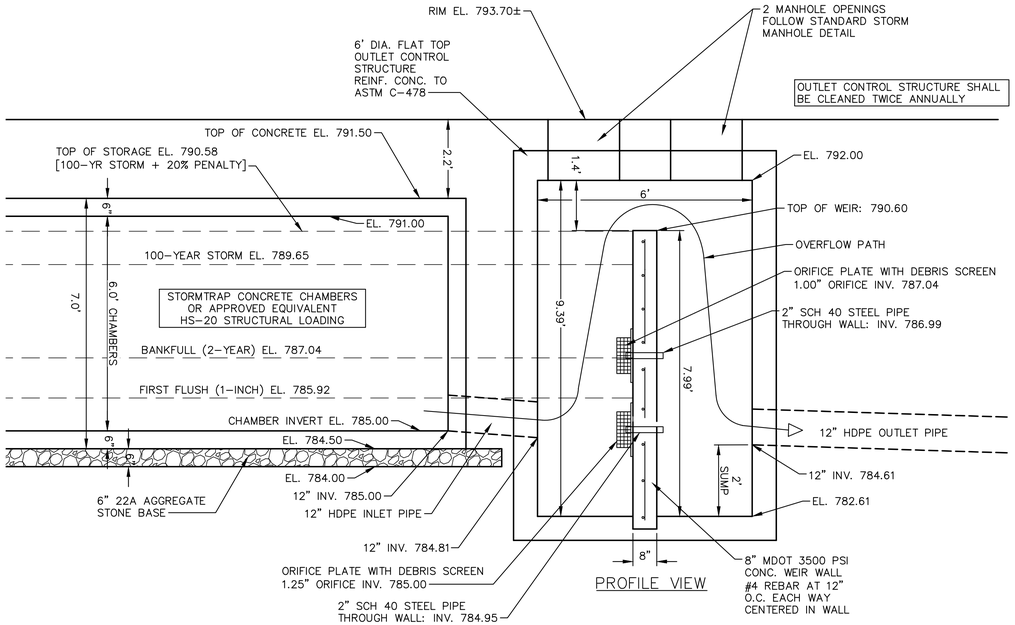
1329/1335 Jones Drive Stormwater Calculations
December 5, 2024

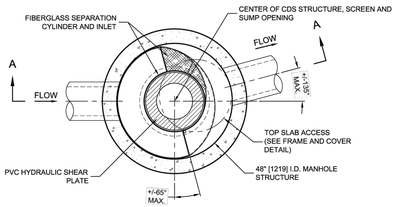
Roof CN: 98
Pavement CN: 98
Vegetation "B" CN: 61 Type B Fox Sandy Loam
Vegetation "D" CN: 80 Type B/D Sloan Silt Loam (use Type D undrained)

EXISTING CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	6,085	12,847	23,041	1,725	18,932	43%	43,698	33,988
Area B: To chambers, then Traver Creek	-	-	-	-	-	0%	-	-
Area C: To Jones Drive Storm Sewers	-	-	3,535	-	-	0%	3,535	2,156
Area D: Undisturbed Jones Dr. Toward Site	-	2,754	600	-	2,754	82%	3,354	3,065
Area E: Sheet Flow to West Property	-	-	5,715	-	-	0%	5,715	3,486
GRAND TOTAL	**6,085**	**15,601**	**32,891**	**1,725**	**21,686**	**39%**	**56,302**	**42,696**

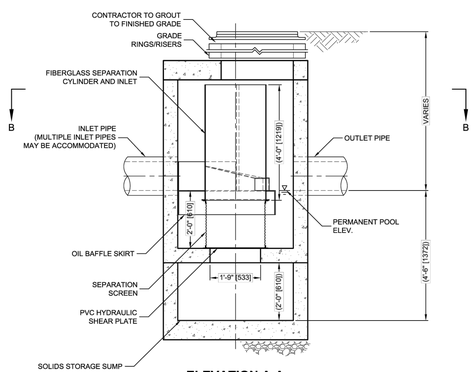
PROPOSED CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	-	-	1,151	3,782	-	0%	4,933	3,728
Area B: To chambers, then Traver Creek	27,604	13,753	2,292	221	41,357	94%	43,870	42,105
Area C: To Jones Drive Storm Sewers	-	1,817	2,106	-	1,817	46%	3,923	3,065
Area D: Undisturbed Jones Dr. Toward Site	-	1,283	-	-	1,283	100%	1,283	1,257
Area E: Sheet Flow to West Property	-	-	242	-	-	0%	242	148
Area F: Ex. Jones Dr. into Jones Storm Sewers	-	2,051	-	-	2,051	100%	2,051	2,010
Area B+D: Total to Chambers	*27,604*	*15,036*	*2,292*	*221*	*42,640*	*94%*	*45,153*	*43,362*
GRAND TOTAL	**27,604**	**18,904**	**5,791**	**4,003**	**46,508**	**83%**	**56,302**	**52,313**

CHANGE IN CONDITIONS	Roof	Pavement	Vegetated "B"	Vegetated "D"	Impervious	% Imperv.	Total	Total CNxA
Area A: North to Traver Creek	(6,085)	(12,847)	(21,890)	2,057	(18,932)		(38,765)	(30,261)
Area B: To chambers, then Traver Creek	27,604	13,753	2,292	221	41,357		43,870	42,105
Area C: To Jones Drive Storm Sewers	-	1,817	(1,429)	-	1,817		388	909
Area D: Undisturbed Jones Dr. Toward Site	-	(1,471)	(600)	-	(1,471)		(2,071)	(1,808)
Area E: Sheet Flow to West Property	-	-	(5,473)	-	-		(5,473)	(3,339)
Area F: Ex. Jones Dr. into Jones Storm Sewers	-	2,051	-	-	2,051		2,051	2,010
Area B+D: Total to Chambers	*27,604*	*15,036*	*2,292*	*221*	*42,640*		*45,153*	*43,362*
GRAND TOTAL	**21,519**	**3,303**	**(27,100)**	**2,278**	**24,822**		**-**	**9,617**



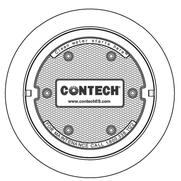


PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

CDS2015-4-C DESIGN NOTES
THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.
CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (CFS OR L/s)	*
PEAK FLOW RATE (CFS OR L/s)	*
RETURN PERIOD OF PEAK FLOW (YRS)	*
SCREEN APERTURE (2400 OR 4700)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE: www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS
STANDARD DETAIL

FINAL STRUCTURE SIZING TO BE PERFORMED IN CONSTRUCTION DOCUMENT SUBMITTAL

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Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

CLIENT
GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE
SITE PLAN FOR REZONING AND CITY COUNCIL
STORMWATER NARRATIVE AND DETAILS

24

DATE: 12/20/24
SHEET 24 OF 27
CADD: KV
ENG: JAM
PM: ROW
TECH:
23022DR03
PB

JOB No. **23022**
REVISIONS:

REV.	DATE

Underground Chamber Stormwater Calculations

REV 12/05/24

W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Rational Method Variables

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building Roof		27,604	0.63	0.95	0.60
Pavement		13,753	0.32	0.95	0.30
Grass	A	0	0.00	0.20	0.00
Grass	B	2,292	0.05	0.30	0.02
Grass	C	0	0.00	0.35	0.00
Grass	D	221	0.01	0.50	0.00
Water Surface		0	0.00	1.00	0.00
Total		43,870	1.01		0.92
		Weighted C = (Sum(C)x(Area))/(Area Total)=			0.91

NRCS Variables (Pervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Grass	A	0	0.00	39	0.00
Grass	B	2,292	0.05	61	0.03
Grass	C	0	0.00	74	0.00
Grass	D	221	0.01	80	0.00
Total		2,513	0.06		0.04
		Weighted CN = (Sum(CN)x(Area))/(Area Total)=			63

NCRS Variables (Impervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Building Roof		27,604	0.63	98	0.62
Pavement		13,753	0.32	98	0.31
Water Surface		0	0.00	98	0.00
Total		41,357	0.95		0.93
		Weighted CN = (Sum(CN)x(Area))/(Area Total)=			98

W2 - W2 - First Flush Runoff Calculations (Vff)

A. Vff = 1" x 1/12" x 43560 sft/ac x A x C where A= 1.01 and where C= 0.91

Vff = 1" x 1/12" x 43560 sft/ac x 1.01 x 0.91 = 3,327 cf

W3 - W3 - Pre-Development Bankfull Runoff Calculations (Vbf-pre)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Pre-Development CN
(Good Cover Woods, Type B Soils) CN= 58
C. S = (1000 / CN) - 10 S= 7.241 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 0.100 in
E. Total Site Area excluding "Self-Crediting" BMPs 43,870 sft
F. Vbf-pre = Q x (1/12) x Area Vbf-pre = 365 cft

W4 - Pervious Cover Post-Development Bankfull Runoff Calculations (Vbf-per-post)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Pervious Cover CN From Worksheet 1 CN= 63
C. S = (1000 / CN) - 10 S= 5.956 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 0.189 in
E. Pervious Cover Area from Worksheet 1 2,513 sft
F. Vbf-per-post = Q x (1/12) x Area Vbf-per-post = 40 cft

W5 - W5 - Impervious Cover Post-Development Bankfull Runoff Calculations (Vbf-imp-post)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Impervious Cover CN From Worksheet 1 CN= 98
C. S = (1000 / CN) - 10 S= 0.204 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 2.122 in
E. Impervious Cover Area from Worksheet 1 41,357 sft
F. Vbf-imp-post = Q x (1/12) x Area Vbf-imp-post = 7,312 cft

W6 - W6 - Pervious Cover Post-Development 100-Year Runoff Calculations (V100-per-post)

A. 100 year / 24 hour storm event: P= 5.11 in
B. Pervious Cover CN From Worksheet 1 CN= 63
C. S = (1000 / CN) - 10 S= 5.956 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 1.555 in
E. Pervious Cover Area from Worksheet 1 2,513 sft
F. V100-per-post = Q x (1/12) x Area V100-per-post = 326 cft

W7 - W7 - Impervious Cover Post-Development 100-Year Runoff Calculations (V100-imp-post)

A. 2 year / 24 hour storm event: P= 5.11 in
B. Impervious Cover CN From Worksheet 1 CN= 98
C. S = (1000 / CN) - 10 S= 0.204 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 4.873 in
E. Impervious Cover Area from Worksheet 1 41,357 sft
F. Vbf-imp-post = Q x (1/12) x Area Vbf-imp-post = 16,794 cft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration Tc= 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A. Summary from Previous Worksheets

First Flush Volume (Vff)	**3,327 cft**
Pre-Development Bankfull Runoff Volume (Vbf-pre)	**365 cft**
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post)	*40 cft*
Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post)	*7,312 cft*
Total BF Volume (Vbf-post)	**7,352 cft**
Pervious Cover Post-Development 100-Year Volume (V100-per-post)	*326 cft*
Impervious Cover Post-Development 100-Year Volume (V100-imp-post)	*16,794 cft*
Total 100-Year Volume (V100)	**17,120 cft**

B. Determine Onsite Infiltration Requirement

Subtract the Pre-Development Bankfull from the Post-Development Bankfull Volume	
Total Post-Development Bankfull Volume (Vbf-post)	7,352 cft
Pre-Development Bankfull Runoff Volume (Vbf-pre)	365 cft
Bankfull Volume Difference	**6,987 cft**
Infiltration Requirement (Vinf)	**6,987 cft**

W10 - Detention/Retention Requirement

A. Q_p = 238.6 Tc^0.82	743.63 cfs/(in x sq. mi)
B. Total Site Area excluding "Self-Crediting" BMPs	1.01 ac
C. Q_{100} = $Q_{100\text{-per}}$ + $Q_{100\text{-imp}}$ (from W6 and W7, respectively)	6.428 in
D. Peak Flow (PF) = Q_p x Q_{100} x Area / 640	7.52 cfs
E. Delta = PF - 0.15 x Area (ac)	7.37 cfs
[0.15 x Area (ac)]	*0.15 cfs*
F. V_{det} = Delta / PF x V_{100}	16,776 cft
Required Detention not including infiltration credit or penalty.	
Sediment Forebay Volume Required (5% of V100)	856 cft

Retention

A. Vret = 2 x V_{100}	34,240 cft

W11 - Determine Applicable BMPs and Associated Volume Credits

Soil borings were performed and review of the subsurface conditions disclosed clay material. Based on the soils encountered, it was recommended that no infiltration capacity exists and therefore no infiltration testing was performed.

		Storage Volume (cft)		Design Infilt. Rate	Infilt. Volume in 6-hr	Total Volume
Proposed BMP	Area (sft)	Surface	In Soil	(in/hr)	Drawdown (cft)	Reduction (cft)
Pervious Pavement					0	0
Infiltration Bed					0	0
Subsurface Infiltration Bed					0	0
Infiltration Trench					0	0
Bioretention Systems					0	0
Rain Gardens					0	0
Dry Well					0	0
Bioswale					0	0
Vegetated Filter Strip					0	0
Green Roof					0	0
				Total Volume Reduction Credit by Proposed Structural BMPs (cft)		0
				Runoff Volume Infiltration Requirement (Vinf) from W9 (cft)		6,987
				Runoff Volume Credit (cft)		0

W12 - Natural Features Inventory

There are no natural features located on this site due to it being an existing built out urban site.
Refer to **Sheet 04** for the Natural Features Plan.

W13 - Site Summary of Infiltration & Detention

A. Stormwater Management Summary

Min Infiltration Requirement (V_{inf})	6,987 cft
Designed/Provided Infiltration Volume	0 cft
% Minimum Required Infiltration Provided	0 %
Total Calculated Detention Volume, V_{det}	16,776 cft
Net Required Detention Volume	16,776 cft
(V_{det} - Designed/Provided Infiltration Volume)	

B. Detention Volume Increase for sites where the required infiltration volume cannot be achieved.

% Required Infiltration NOT Provided	100.0 %
(100% - % Minimum Required Infiltration Provided)	
Net % Penalty (20% x % Required Infiltration NOT Provided)	20.0 %
Total Required Detention Volume, including penalty	**20,131 cft**
[(100% + Net % Penalty) x Net Required Detention Volume)]	

Detention Outlet Calculcations

A. Required Detention Volumes (Reduced by 6-hour infiltration)

Storm Event	Req'd Volume	less	Infil. Credit	=	Final Volume
First Flush	3,327 cft	-	0 cft	=	**3,327** cft
Bankfull	7,352 cft	-	0 cft	=	**7,352** cft
100 -year	16,776 cft	-	0 cft	=	**16,776** cft
100-year + Req'd Penalty	20,131 cft	-	0 cft	=	**20,131** cft
Forebay Volume Required (5% of 100-yr)				=	**839** cft

B. Detention Volumes Provided

	Area (sft)	Volume (cft)	Height (ft)	% Voids	Void Area (sft)
Tank Under Building	1,817	9,388	6	86.1%	1,565
Tank West of Building	2,306	12,261	6	88.6%	2,044
Combined Tanks	**4,123**	**21,649**	**6**	**87.5%**	**3,608**

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
785.0	3,608	0	0	0
786.0	3,608	1.00	3,608	3,608
787.0	3,608	1.00	3,608	7,216
788.0	3,608	1.00	3,608	10,825
789.0	3,608	1.00	3,608	14,433
790.0	3,608	1.00	3,608	18,041
791.0	3,608	1.00	3,608	21,649
			Total Volume Provided =	**21,649**

Storage Elevation Calculation

First Flush Elevation (Xff)=	786.00	-	785.00	=	Xff	-	785.00	Xff = **785.92** ft
	3,608	-	0		**3,327**	-	0	
Bankfull Elevation (Xbf)=	788.0	-	787.0	=	Xbf	-	787.0	Xbf = **787.04** ft
	10,825	-	7,216		**7,352**	-	7,216	
100-Year Elevation =	790.0	-	789.0	=	Xbf	-	789.0	Xbf = **789.65** ft
	18,041	-	14,433		**16,776**	-	14,433	
100-Year Elevation (X100*)=	791.0	-	790.0	=	Xbf	-	790.0	Xbf = **790.58** ft
[with penalty]	21,649	-	18,041		**20,131**	-	18,041	

C. Two-Stage Outlet Design

First Flush Discharge (24-36 hours for the detention of first flush storm event)

Average Head (H_{ave}) = 2/3 (X_{ff} - X_{bot}) =	2/3 (785.92 - 785) =	0.61 ft
First Flush Max. Flowrate ($Q_{ff\text{-}max}$) = Vff / 24 hrs =	3327cfs / (24 hrs*3600) =	0.04 cfs
Req Area (Aff) = $Q_{ff\text{-}max}$ / 0.62 / sqrt(2*g*H_{ave}) =	0.04/0.62/(2*32.2*0.61)^0.5=	0.010 sft
Orifice Diameter, Proposed		1.250 in
Orifice Area	=	0.0085 sft
Number Required for 24 hr drainage = Aff / Orifice Area=	0.01 sft / 0.0085 sft =	1.21 holes
Number of Holes to Use		1 holes
Area of (1) - 1.25 inch Orific Aff		0.0085 sft
Actual Flow (Qff) = 0.62 * Aff * sqrt(2*g*H_{ave}) =	0.62 * 0.0085 *sqrt(2*32.2*0.61) =	0.033 cfs
Actual Time (Tff) = Vff / Qff =	3327 cf / 0.033 cfs / 3600 =	27.98 hr

Bankfull Discharge (36-48 hours)

Average Head (H_{ave}) =	2/3 (Xbf - Xbot) = 2/3 (787.04 - 785) =	1.36 ft
Actual Flow (Qbf) = 0.62 * Aff * sqrt(2*g*Have) = 0.62 * 0.0085 * sqrt(2 * 32.2 * 1.36)=		0.049 cfs
Actual Time (Tbf) = Vbf / Qbf =	7352 cf / 0.049 cfs / 3600 =	41.41 hr
Drawdown Time for Bankfull Volume is between 36 and 48 hours		
Therefore use (1) 1.25 inch Diameter Holes at Elev 785		

100-year Discharge (0.15 cfs/acre max. allowed)

Max Head to Lowest Holes ($H_{max\text{-}100\text{-}ff}$) = X_{100} - X_{bot}=	790.58 - 785 =	5.58 ft
Max Flow at Lowest Holes ($Q_{max\text{-}ff}$)= 0.62 * A_{ff} * sqrt(2 * g * H_{max}) =		
	= 0.62 * 0.0085 * sqrt(2 * 32.2 * 5.58) =	0.100 cfs
Max Head to 100yr Holes ($H_{max\text{-}100}$) = X_{100} - X_{bf} =	790.58 - 787.04 =	3.54 ft
QA (Allowable 100-year release rate)= 0.15 cfs/acre =	0.15 cfs * 1.01 ac =	0.151 cfs
Max flow through 100-year holes = $Q_{max\text{-}100}$ = QA - $Q_{max\text{-}ff}$ = 0.15 cfs - 0.1 cfs =		0.05 cfs
Max. Area for Orifices (A_{100}) = Q_{max} / 0.62 / sqrt (2*g*h-100$_{max}$)		0.005 sft
Orifice Diameter		1.000 in
Orifice Area		0.005 sft
Number Required for 0.15 cfs/acre drainage		1.00
Number of holes used		1 ea
Area of (1) - 1 inch Orifice (A_{100})		0.005 sft
100-year orifices - Actual Flow ($Q_{max\text{-}100}$) = 0.62 * A_{100} * sqrt (2 * g * H_{max100})		
	= 0.62 * 0.005 * sqrt (2 * 32.2 * 3.54) =	0.050 cfs
Actual Max Release Rate (Qmax) = Qmax-100 + Qmax-ff =	0.05 cfs + 0.1 cfs =	0.15 cfs

100-year Drawdown Time (72-hour max. to the lowest orifice)

Average head to first holes with all orfice in use ($H_{ff\text{-}ave}$) = 2/3 (X_{100} - Xbf) + (Xbf - X_{bot})		
$H_{ff\text{-}ave}$ =	2/3 (790.58 - 787.04) + (787.04 -785) =	4.40 ft
Average flow through lowest holes to bankfull elevation = 0.62 * Aff * sqrt (2 * g * $H_{ff\text{-}ave}$)		
$Q_{ff\text{-}ave}$ =	0.62 * 0.0085 * SQRT(2 * 32.2 * 4.4)	0.089 cfs
Average head to 100-year holes with all orifices in use = 2/3 (X_{100}-Xbf)		
$H_{100\text{-}ave}$ = 2/3 * (790.58 - 787.04) =		2.36 ft
Average flow through 100-yr holes with all holes in use = 0.62 * A_{100} * sqrt (2 * g * $H_{100\text{-}ave}$)		
$Q_{100\text{-}ave}$ =	0.62 * 0.005 * sqrt(2 * 32.2 * 2.36) =	0.038 cfs
Combined drawdown flow ($Q_{100\text{-}bf}$) = $Q_{ff\text{-}ave}$ + $Q_{100\text{-}ave}$ = 0.089 cfs + 0.038 cfs =		0.127 cfs
Volume of Storage above Bankfull Elev (V_{rem}) = V_{100} - V_{bf} =	20131 - 7352 =	12,779 cft
Time to drain Volume between 100yr and bankfull elevations = V_{rem}/$Q_{100\text{-}bf}$/3600		
	= 12779 cf / 0.127 cfs / 3600 =	27.97 hr
Total 100-year drawdown time = T100 = T100-bf + Tbf =	41.41 hrs + 27.97 hrs =	69.38 hr
Therefore use (1) 1 inch Diameter Holes at Elev 787.04		

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GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
STORMWATER DETENTION CALCULATIONS

25

JOB No. 23022
REVISIONS:

REV.	DATE

DATE: 12/20/24
SHEET 25 OF 27
CADD: KJV
ENG: JAM
PM: ROW
TECH:
23022DR03
FB:

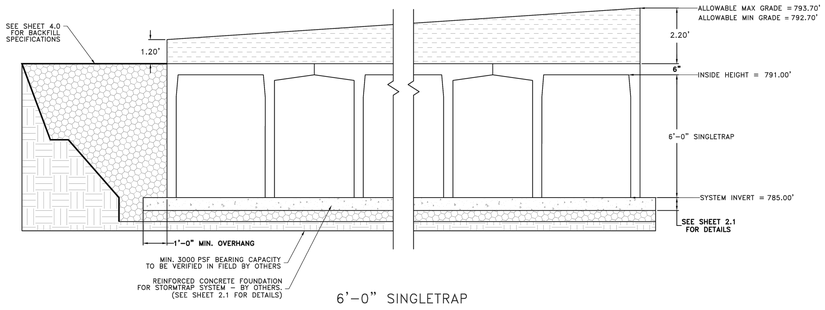
CENTRAL CHAMBERS (UNDER BUILDING)

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	3000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION		
UNIT HEADROOM:	6'-0" SINGLETRAP	
TOTAL STORAGE PROV:	9387.99	CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.20' MAX. 2.20' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



6'-0" SINGLETRAP

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Midwestern Consulting
Ann Arbor, MI

PROJECT INFORMATION:
Jones Drive
Tank 1
Ann Arbro, MI

CURRENT ISSUE DATE:
10/07/2024

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	10/07/2024	PRELIMINARY	JM

SCALE: NTS

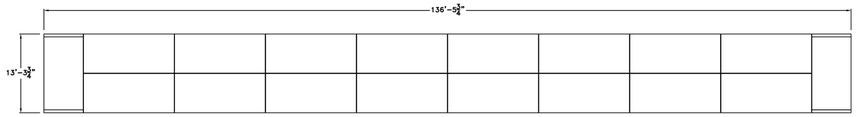
SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.1

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	6'-0" SINGLETRAP	0
0	II	6'-0" SINGLETRAP	0
16	III	6'-0" SINGLETRAP	18910
0	IV	6'-0" SINGLETRAP	0
0	VII	6'-0" SINGLETRAP	0
0	VII-1	6'-0" SINGLETRAP	0
0	VII-2	6'-0" SINGLETRAP	0
0	VII-3	6'-0" SINGLETRAP	0
0	VII-4	6'-0" SINGLETRAP	0
0	SPIII	6'-0" SINGLETRAP	VARIES
2	SPIV	6'-0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
4	T4 PANEL	6" THICK PANEL	2981
0	T7 PANEL	6" THICK PANEL	0
5	JOINTWRAP	150' PER ROLL	
24	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 18			
TOTAL PANELS = 4			
HEAVIEST PICK WEIGHT = 18910			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 793.70'
ALLOWABLE MIN GRADE = 792.70'
INSIDE HEIGHT ELEVATION = 791.00'
SYSTEM INVERT = 785.00'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



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StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Midwestern Consulting
Ann Arbor, MI

PROJECT INFORMATION:
Jones Drive
Tank 1
Ann Arbro, MI

CURRENT ISSUE DATE:
10/07/2024

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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	10/07/2024	PRELIMINARY	JM

SCALE: NTS

SHEET TITLE: SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER: 2.0

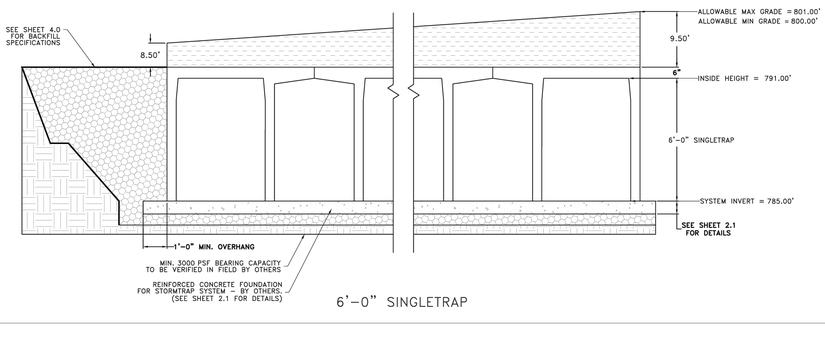
WEST CHAMBERS (UNDER PARKING LOT)

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	3000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION		
UNIT HEADROOM:	6'-0" SINGLETRAP	
TOTAL STORAGE PROV:	12261.85	CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 8.50' MAX. 9.50' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



6'-0" SINGLETRAP

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ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Midwestern Consulting
Ann Arbor, MI

PROJECT INFORMATION:
Jones Drive
Tank 2
Ann Arbo, MI

CURRENT ISSUE DATE:
10/07/2024

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PRELIMINARY

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1	10/07/2024	PRELIMINARY	JM

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.1

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
9	I	6'-0" SINGLETRAP	18050
0	II	6'-0" SINGLETRAP	0
8	III	6'-0" SINGLETRAP	18910
2	IV	6'-0" SINGLETRAP	20589
0	VII	6'-0" SINGLETRAP	0
0	VII-1	6'-0" SINGLETRAP	0
0	VII-2	6'-0" SINGLETRAP	0
0	VII-3	6'-0" SINGLETRAP	0
0	VII-4	6'-0" SINGLETRAP	0
0	SPIII	6'-0" SINGLETRAP	VARIES
2	SPIV	6'-0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
4	T4 PANEL	6" THICK PANEL	2981
0	T7 PANEL	6" THICK PANEL	0
5	JOINTWRAP	150' PER ROLL	
16	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 21			
TOTAL PANELS = 4			
HEAVIEST PICK WEIGHT = 20589			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 801.00'
ALLOWABLE MIN GRADE = 800.00'
INSIDE HEIGHT ELEVATION = 791.00'
SYSTEM INVERT = 785.00'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
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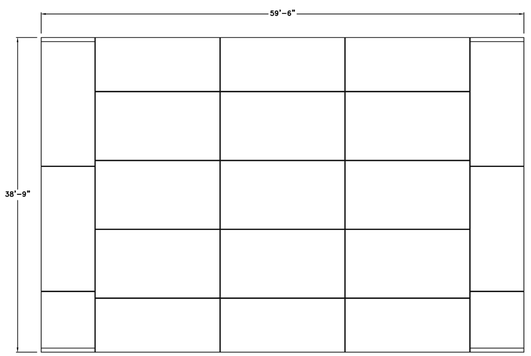

N

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ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Midwestern Consulting
Ann Arbor, MI

PROJECT INFORMATION:
Jones Drive
Tank 2
Ann Arbo, MI

CURRENT ISSUE DATE:
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SCALE: NTS

SHEET TITLE: SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER: 2.0

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ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
STORMWATER CHAMBER DETAILS

26

DATE: 12/20/24
SHEET 26 OF 27
CADD: K/V
ENG: JAM
PM: ROW
TECH:
23022DR03
PE:

JOB No. 23022
REVISIONS:

REV.	DATE:

Statistics							
Description	**Symbol**	**Avg**	**Max**	**Min**	**Max/Min**	**Avg/Min**	**Avg/Max**
JONES DRIVE PROPERTY LINE	+	0.6 fc	0.8 fc	0.1 fc	8.0:1	6.0:1	0.8:1
PARKING LOT	+	1.4 fc	2.5 fc	0.4 fc	6.3:1	3.5:1	0.6:1
SIDES AND REAR PROPERTY LINE	+	0.2 fc	0.8 fc	0.0 fc	N/A	N/A	0.3:1
BUILDING APPROACH	+	1.3 fc	2.4 fc	0.4 fc	6.0:1	3.3:1	0.5:1

Schedule						
Symbol	**Label**	**QTY**	**Manufacturer**	**Description**	**Lamp**	**Mounting Height**
	A	10	Lithonia Lighting	WDGE2 LED WALLPACK 3000K & 70CRI	LED	18'-0"
	B	5	Lithonia Lighting	WDGE2 LED WALLPACK 3000K & 70CRI	LED	18'-0"
	C	5	Lithonia Lighting	WDGE2 LED WALLPACK 3000K & 70CRI	LED	18'-0"

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

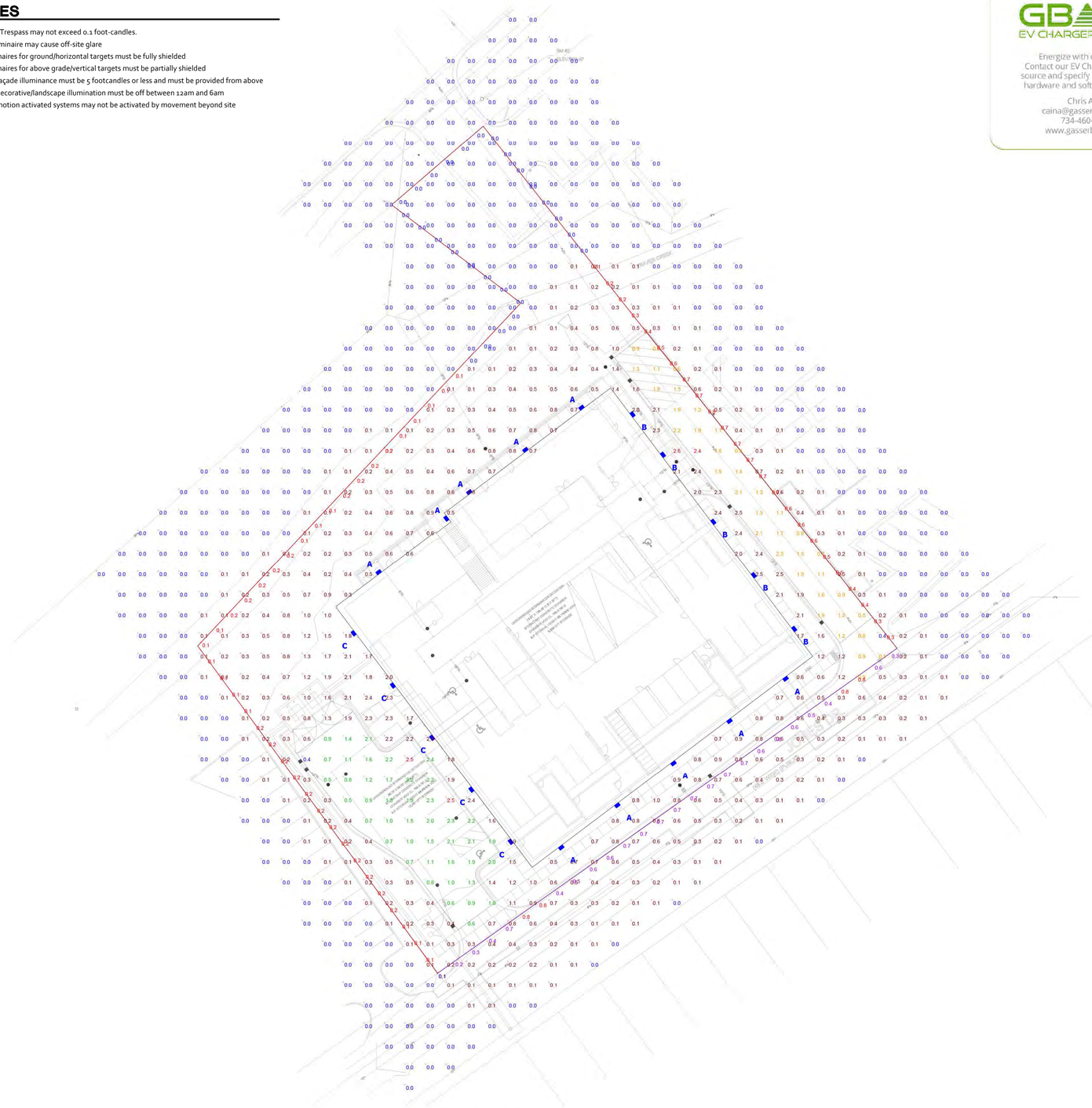
THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT CONTROLS@GASSERBUSH.COM OR 734-266-6705.

NOTES

1) Light Trespass may not exceed 0.1 foot-candles.
2) No luminaire may cause off-site glare
3) Luminaires for ground/horizontal targets must be fully shielded
4) Luminaires for above grade/vertical targets must be partially shielded
5) Any façade illuminance must be 5 footcandles or less and must be provided from above
6) Any decorative/landscape illumination must be off between 12am and 6am
7) Any motion activated systems may not be activated by movement beyond site



Plan View
Scale - 1" = 25ft

WDGE2 LED
Architectural Wall Sconce
Precision Refractive Optic

Catalog Number
Notes
Type

Introduction

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

WDGE2 with industry leading precision refractive optics provides great uniform distribution and optical control. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

Specifications

Depth (D1): 7"
Depth (D2): 1.5"
Height: 9"
Width: 11.5"
Weight: (without options) 13.5 lbs

design select Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect *See ordering tree for details

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI) P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	--	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,800	16,000	18,000	20,000	22,000	25,000

Ordering Information **EXAMPLE:** WDGE2 LED P3 40K 80CRI T3M MVOLT SRM DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE2 LED	P0[1] P1[1] P2[1] P3[1] P4[1]	27K 2700K 30K 3000K 40K 4000K 50K 5000K AMBP Amber	70CRI[2] 80CRI LW[3] Limited Wavelength	T1S Type I Short T2M Type II Medium T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT 347[4] 480[4]	Shipped included SRM Surface mounting bracket[5] ICW Indirect Canopy/Ceiling Washer bracket (dry-damp locations only)[6] Shipped separately AWS 3/8inch Architectural wall spacer PBBW Surface-mounted back box (top, left, right conduit entry). Use when there is no junction box available

Options		Finish
E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 3°C min)	**Standalone Sensors/Controls**	DDBXD Dark bronze
E20WC Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)	PIR Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.	DBLXD Black
PE[7] Photocell, Button type	PIRH Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.	DNAXD Natural aluminum
DMG[7] 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)	PIR1FC3V Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.	DWHXD White
BCE Bottom conduit entry for back box (PBBW). Total of 4 entry points.	PIRH1FC3V Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.	DSSXD Sandstone
CCE Coastal Construction	**Networked Sensors/Controls**	DDBTXD Textured dark bronze
	NLTAIR2 PIR Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights.	DBLBXD Textured black
	NLTAIR2 PIRH Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 15-30' mounting heights.	DNATXD Textured natural aluminum
	NLTAIRE2 Embedded wireless controls by nLight with UL924 listed emergency operation, Passive Infrared Occ sensor and on/off.	DWNGXD Textured white
	PIRH photocell for 15-30' mounting heights)	DSSTXD Textured sandstone
	See page 4 for out of box functionality	

LITHONIA LIGHTING COMMERCIAL OUTDOOR One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.acuity.com

WDGE2 LED Rev. 05/30/24

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ATTN: JAN DUNN
248-909-2021

1329 JONES DRIVE APARTMENTS
PHOTOMETRIC SITE PLAN
GASSER BUSH ASSOCIATES
PREPARED FOR: MIDWESTERN CONSULTING
WWW.GASSERBUSH.COM

Designer DP/KB
Date 5/6/2024 rev. 12/11/2024
Scale Not to Scale
Drawing No. #24-29098-V2

1329 / 1333 JONES DRIVE
SITE PLAN FOR REZONING AND CITY COUNCIL
PHOTOMETRIC LIGHTING PLAN

27

DATE: 12/20/24
SHEET 27 OF 27
CADD: KJV
ENG: JAM
PM: RCW
TECH:
Z:\2022\LTD1
FB:

JOB No. 23022
REVISIONS: REV. DATE

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447R1

Latitude: 42.29317° Longitude: -83.7339°

Soil Boring No. B-01

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 806.1 ft		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Brown and Dark Brown Gravelly Sand (12 inches)	1.0							
801.1		Fill: Loose to Medium Compact Very Dark Brown to Black Silty Sand with trace gravel (Steel Slag)	14.5	5	S-01	9 5	14			
					S-02	3 4 4	8			
					S-03	4 3 5	8			
796.1				10	S-04	5 5 6	11			
791.1				15	S-05	8 7 6	13	15.1		3000*
		Stiff to Very Stiff Brown Sandy Clay with trace gravel	22.0							
786.1				20	S-06	5 6 7	13	17.7		5000*
781.1		Hard Brown Gray Sandy Clay with trace gravel	25.0	25	S-07	7 7 9	16	13.1		9000*
		End of Boring @ 25 ft								

Total Depth: 25 ft
Drilling Date: July 5, 2023
Inspector: ---
Contractor: Strata Drilling, Inc.
Driller: D. Watking

Water Level Observation:
Dry during and upon completion

Notes:
* Calibrated Hand Penetrometer

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 1

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447R1

Latitude: 42.29323° Longitude: -83.7337°

Soil Boring No. B-02

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 806.4 ft		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Brown and Dark Brown Gravelly Sand (14 inches)	1.2							
801.4		Fill: Loose to Medium Compact Very Dark Brown to Black Silty Sand with trace gravel (Steel Slag)	15.0	5	S-01	7 10 9	19			
					S-02	3 4 5	9			
					S-03	5 5 7	12			
796.4				10	S-04	6 7 8	15			
791.4				15	S-05	8 5 5	10			
		Very Stiff Brown Sandy Clay with trace gravel	22.0							
786.4				20	S-06	5 6 7	13	16.9		6000*
781.4		Hard Brown Gray Sandy Clay with trace gravel	25.0	25	S-07	7 9 13	22	11.8		9000*
		End of Boring @ 25 ft								

Total Depth: 25 ft
Drilling Date: July 5, 2023
Inspector: ---
Contractor: Strata Drilling, Inc.
Driller: D. Watking

Water Level Observation:
Dry during and upon completion

Notes:
* Calibrated Hand Penetrometer

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 2

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447R1

Latitude: 42.29313° Longitude: -83.7337°

Soil Boring No. B-03

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 807.0 ft		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Brown and Dark Brown Gravelly Sand (7 inches)	0.6							
802.0		Fill: Loose to Medium Compact Very Dark Brown to Black Silty Sand with trace gravel (Steel Slag)	10.0	5	S-01	7 13 16	29			
					S-02	5 5 5	10			
797.0				10	S-04	10 5 5	10			
792.0		Loose Brown Clayey Sand with trace gravel	17.0	15	S-05	4 3 5	8			
787.0		Hard Brown Sandy Clay with trace gravel	22.0	20	S-06	5 5 9	16	14.4		9000*
782.0		Hard Brown Gray Sandy Clay with trace gravel	25.0	25	S-07	7 11 15	26	10.0		9000*
		End of Boring @ 25 ft								

Total Depth: 25 ft
Drilling Date: July 5, 2023
Inspector: ---
Contractor: Strata Drilling, Inc.
Driller: D. Watking

Water Level Observation:
Dry during and upon completion

Notes:
* Calibrated Hand Penetrometer

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 3

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447R1

Latitude: 42.29303° Longitude: -83.7336°

Soil Boring No. B-04

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 806.9 ft		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Brown and Dark Brown Gravelly Sand (8 inches)	0.7							
801.9		Fill: Medium Compact Very Dark Brown to Black Silty Sand with trace gravel (Steel Slag)	13.0	5	S-01	2 4 8	17			
					S-02	4 5 7	12			
					S-03	5 4 6	10			
796.9				10	S-04	5 7 9	16			
791.9				15	S-05	4 8 7	15	11.7		7000*
		Very Stiff Brown Sandy Clay with trace gravel	22.0							
786.9				20	S-06	5 6 6	12	16.3		6000*
781.9		Hard Brown Gray Sandy Clay with trace gravel	25.0	25	S-07	6 7 11	18	11.6		9000*
		End of Boring @ 25 ft								

Total Depth: 25 ft
Drilling Date: July 5, 2023
Inspector: ---
Contractor: Strata Drilling, Inc.
Driller: D. Watking

Water Level Observation:
Dry during and upon completion

Notes:
* Calibrated Hand Penetrometer

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 4

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447R1

Latitude: 42.29318° Longitude: -83.7336°

Soil Boring No. B-05

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 807.6 ft		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Brown and Dark Brown Gravelly Sand (10 inches)	0.8							
802.6		Fill: Loose Very Dark Brown to Black Silty Sand with trace gravel (Steel Slag)	7.5	5	S-01	3 3 3	6			
					S-02	2 5 3	8			
					S-03	3 4 6	10			
797.6		Medium Compact Brown Silty Sand with trace clay and gravel	12.0	10	S-04	5 5 7	12			
792.6				15	S-05	4 5 5	10	12.6		3000*
		Stiff to Very Stiff Brown Sandy Clay with trace gravel	22.0							
787.6				20	S-06	6 7 8	15	15.4		7000*
782.6		Hard Brown Gray Sandy Clay with trace gravel	25.0	25	S-07	7 10 12	22	10.6		9000*
		End of Boring @ 25 ft								

Total Depth: 25 ft
Drilling Date: July 5, 2023
Inspector: ---
Contractor: Strata Drilling, Inc.
Driller: D. Watking

Water Level Observation:
Dry during and upon completion

Notes:
* Calibrated Hand Penetrometer

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 5

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447

Latitude: 42.293420° Longitude: -83.733630°

Soil Boring No. B-06

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 788.5 ft ±		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Bituminous Concrete (4 inches)	0.3							
		Fill: Gray Gravelly Sand	0.7							
783.5		(finer than no. 200 = 36.2%) Loose to Medium Compact Mottled Brown Clay and Sand with trace gravel and little silt	6.0	5	S-01	5 7 4	11			
		Very Stiff Brown Clay with trace sand and gravel	8.0		S-02	4 3 5	8			
					S-03	4 5 9	14	14.1		5500*
778.5		Hard Gray Clay with trace sand and gravel	15.0	10	S-04	6 6 7	13	12.9		9000*
					S-05	9 12 15	27	11.4		9000*
773.5		End of Boring @ 15 ft		15	S-06	11 13 18	31	10.9		9000*

Total Depth: 15 ft
Drilling Date: April 26, 2024
Inspector: P. Guisinger
Contractor: Xterra Drilling
Driller: J. Bowerman

Water Level Observation:
Dry during drilling; 14-1/2 feet upon completion

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings, cold asphalt patch

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 1

Project Name: Proposed Development

Project Location: 1440 Plymouth Road/1329 Jones Drive
Ann Arbor, Michigan

G2 Project No. 233447

Latitude: 42.293420° Longitude: -83.733630°

Soil Boring No. B-07

CONSULTING GROUP

SUBSURFACE PROFILE					SOIL SAMPLE DATA						
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 791.0 ft ±		DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Bituminous Concrete (7 inches)	0.6							
		Fill: Brown Gravelly Sand	1.1							
786.0		(finer than no. 200 = 80.3%) Stiff Brown Sandy Clay with trace gravel	5.5	5	S-01	4 3 2	5	16.5		3000*
		Very Stiff Brown Clay with trace sand and gravel	10.5		S-02	WOH 2 3	5	22.1		2000*
					S-03	4 5 5	10	15.6		5500*
781.0				10	S-04	5 7 10	17	13.5		6000*
		Hard Gray Clay with trace sand and gravel			S-05	6 6 9	15	11.8		9000*
		(Sand Seams)	15.0	15	S-06	7 10 11	21	10.6		9000*
776.0		End of Boring @ 15 ft								

Total Depth: 15 ft
Drilling Date: April 26, 2024
Inspector: P. Guisinger
Contractor: Xterra Drilling
Driller: J. Bowerman

Water Level Observation:
Dry during drilling; 14-3/4 feet upon completion

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings, cold asphalt patch

Drilling Method:
2-1/4 inside diameter hollow stem augers

Figure No. 2

MIDWESTERN CONSULTING
3815 Plaza Drive, Ann Arbor, Michigan 48108
(734) 995-0200 • www.midwesternconsulting.com
Land Development • Land Survey • Institutional • Municipal
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CLIENT
GREENSPAN S & B, LLC
26645 W. 12 MILE RD., SUITE 200
SOUTHFIELD, MI 48034
ATTN: JAN DUNN
248-909-2021

1329 / 1333 JONES DRIVE

SITE PLAN FOR REZONING AND CITY COUNCIL
SOIL BORING LOGS

28

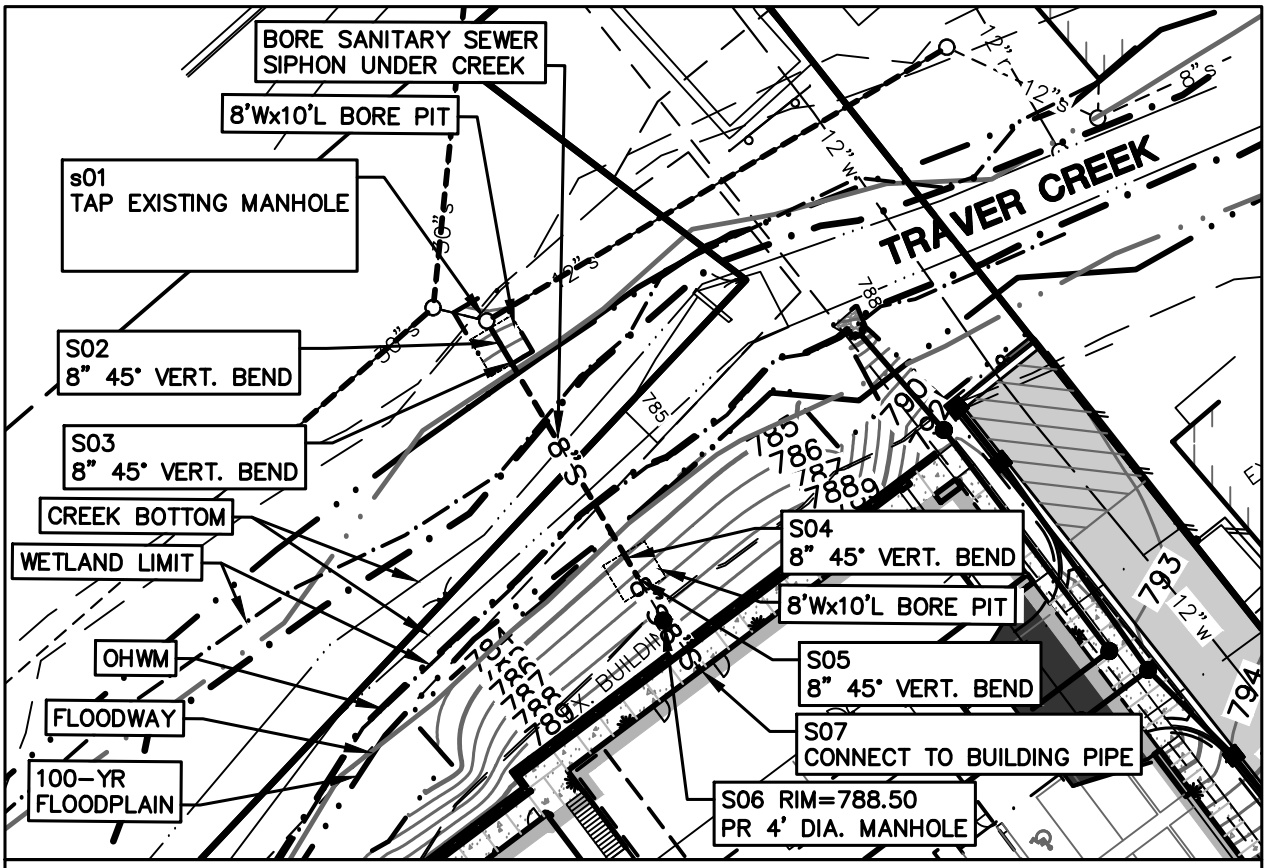
JOB No. 23022
REVISIONS: REV. DATE

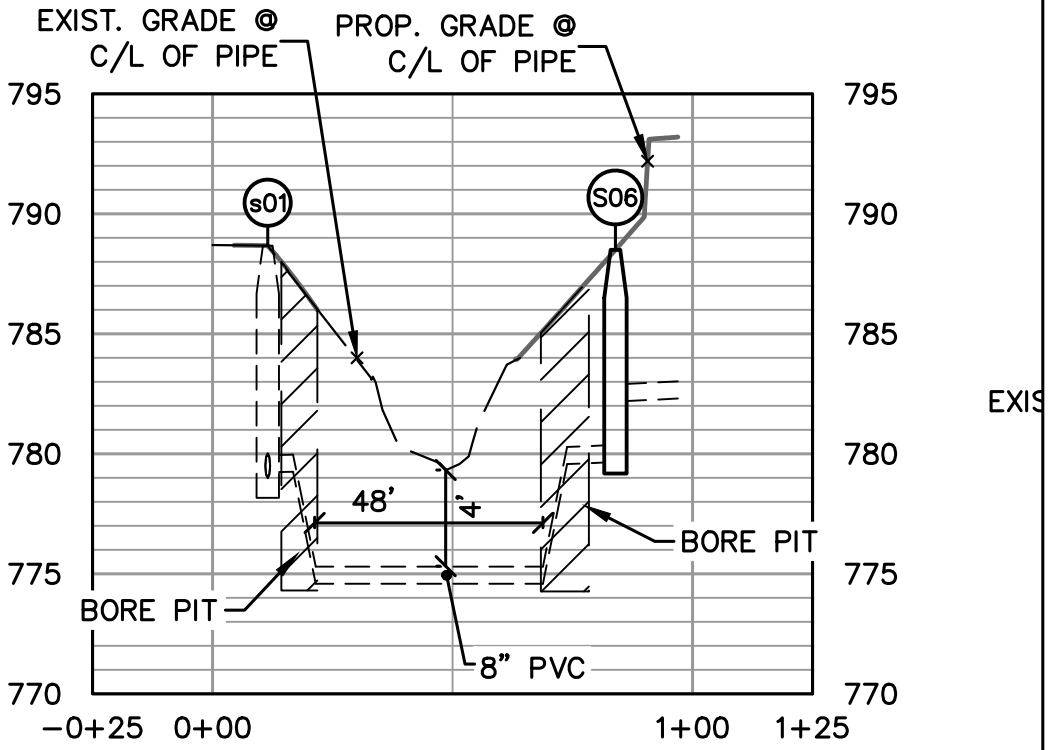
DATE: 12/20/24
SHEET 28 OF 27
CADD: KJV
ENG: JAM
PM: RCW
TECH:
23022SB01
FB:

UTILITY STREAM CROSSING EXHIBIT

SCALE: 1" = 40'

0 40 80 120





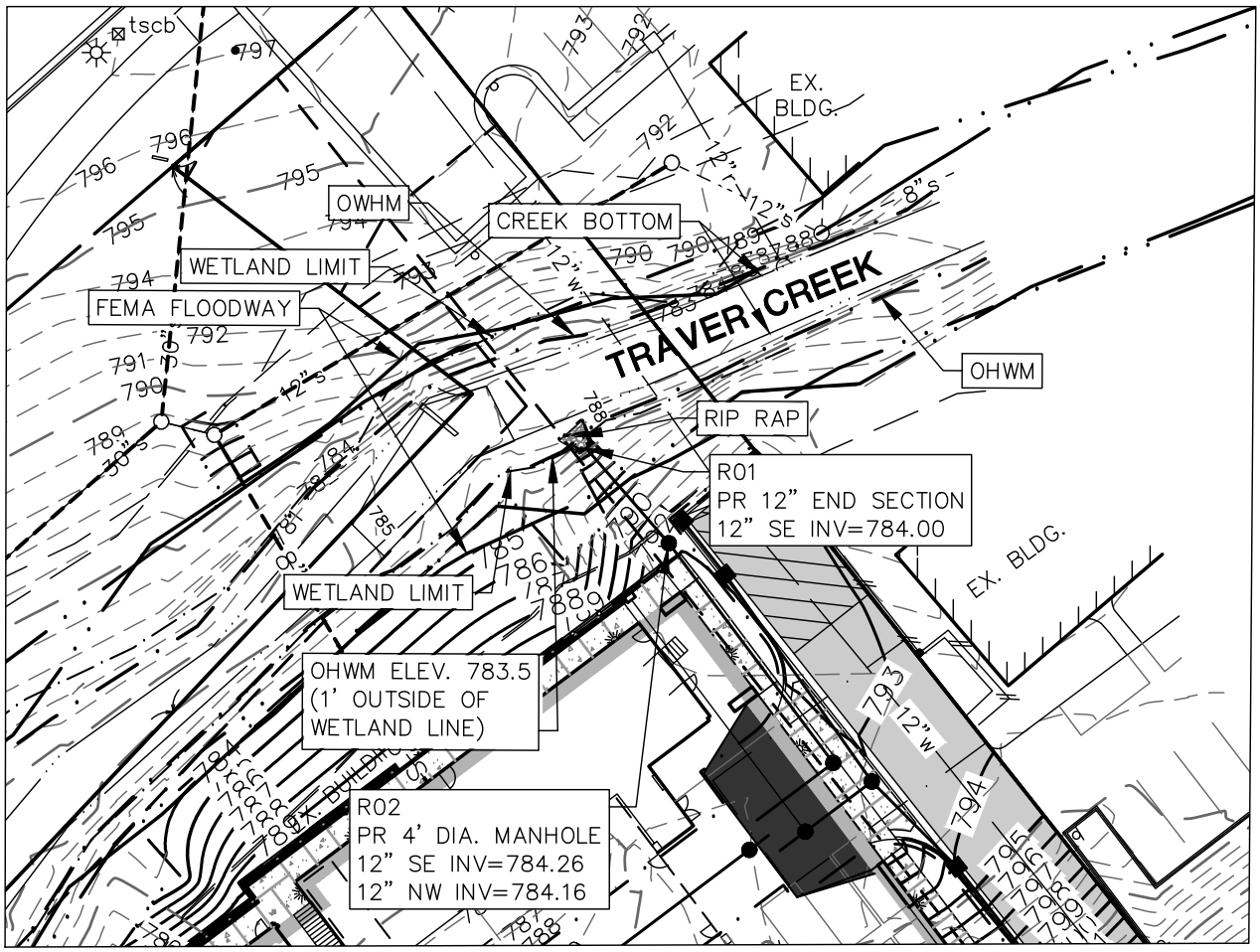
SANITARY SEWER LEAD

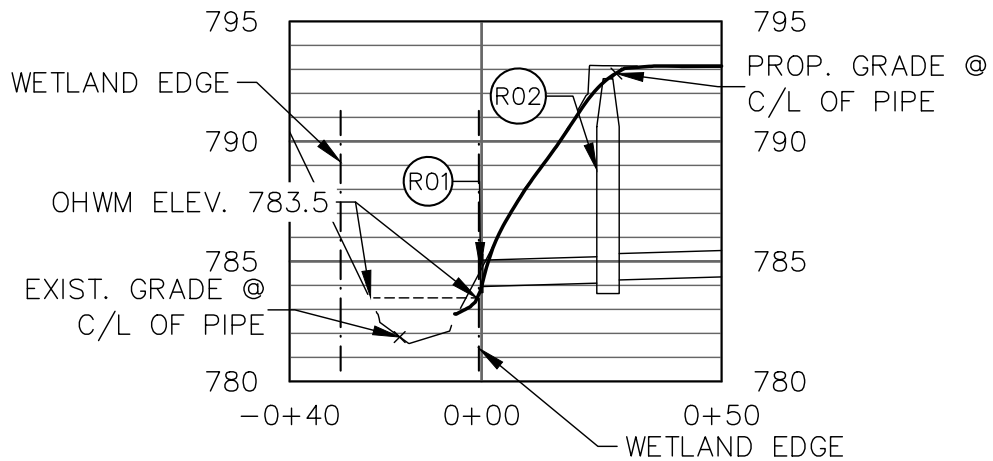
HOR.: 1"=40', VERT.: 1"=10'

STORM SEWER OUTFALL EXHIBIT

SCALE: 1" = 40'

0 40 80 120





STORM 1

HOR.: 1"=40', VERT.: 1"=10'