Township Supervisor Brenda L. Stumbo Township Clerk Debbie Swanson Township Treasurer Stan Eldridge



Trustees
John Newman II
Gloria Peterson
Karen Lovejoy Roe
LaResha Thornton

REGULAR MEETING AGENDA

Tuesday, July 22, 2025 6:30 P.M.

If you need any assistance due to a disability, please contact the Planning Department at least 48 hours in advance of the meeting at planning@ypsitownship.org or 734-544-4000 ext. 1.

- 1. CALL TO ORDER
- 2. ROLL CALL
- 3. APPROVAL OF THE MAY 13, 2025, REGULAR MEETING MINUTES
- 4. APPROVAL OF AGENDA
- 5. PUBLIC HEARINGS
 - A. SPECIAL LAND USE ZIPPY CAR WASH 1822 W MICHIGAN PARCEL K-11-39-252-022 TO CONSIDER THE SPECIAL LAND USE APPLICATION OF ZIPPY AUTO WASH/COREY WEAVER TO PERMIT A VEHICLE WASH ON A SITE ZONED REGIONAL CORRIDOR (RC) WITH A SITE TYPE C DESIGNATION.
- 6. OLD BUSINESS
- 7. NEW BUSINESS
 - A. SPECIAL LAND USE ZIPPY CAR WASH 1822 W MICHIGAN PARCEL K-11-39-252-022 TO CONSIDER THE SPECIAL LAND USE APPLICATION OF ZIPPY AUTO WASH/COREY WEAVER TO PERMIT A VEHICLE WASH ON A SITE ZONED REGIONAL CORRIDOR (RC) WITH A SITE TYPE C DESIGNATION.
 - B. PRELIMINARY SITE PLAN ZIPPY CAR WASH 1822 W MICHIGAN PARCEL K-11-39-252-022 TO CONSIDER THE PRELIMINARY SITE PLAN APPLICATION OF ZIPPY AUTO WASH/COREY WEAVER TO PERMIT A VEHICLE WASH ON A SITE ZONED REGIONAL CORRIDOR (RC) WITH A SITE TYPE C DESIGNATION.
- 8. OPEN DISCUSSION FOR ISSUES NOT ON THE AGENDA
 - A. CORRESPONDENCE RECEIVED
 - **B. PLANNING COMMISSION MEMBERS**
 - C. MEMBERS OF THE AUDIENCE
- 9. TOWNSHIP BOARD REPRESENTATIVE REPORT
- 10. ZONING BOARD OF APPEALS REPRESENTATIVE REPORT
- 11. TOWNSHIP ATTORNEY REPORT

Township Supervisor Brenda L. Stumbo Township Clerk Debbie Swanson Township Treasurer Stan Eldridge



Trustees
John Newman II
Gloria Peterson
Karen Lovejoy Roe
LaResha Thornton

- 12. PLANNING DEPARTMENT REPORT
- 13. OTHER BUSINESS
- 14. ADJOURNMENT

CHARTER TOWNSHIP OF YPSILANTI

PLANNING COMMISSION MEETING

Tuesday, May 13, 2025

6:30 P.M.

COMMISSIONERS PRESENT

Bill Sinkule Gloria Peterson Larry Doe Darrell Kirby Amy Kehrer

STAFF AND CONSULTANTS

Sally Elmiger - Carlisle Wortman Dennis McLain – Township Attorney

• CALL TO ORDER/ROLL CALL

MOTION: Mr. Sinkule called the meeting to order at 6:30 p.m.

• APPROVAL OF MARCH 25, 2025 AND APRIL 8, 2025, REGULAR MEETING MINUTES

MOTION: Mr. Kirby **MOVED** to approve the March 25, 2025 and April 8, 2025, regular meeting minutes. The **MOTION** was **SECONDED** by Mr. Doe and **PASSED** by unanimous consent.

• APPROVAL OF AGENDA

MOTION: Mr. Doe **MOVED** to approve the agenda as presented. The **MOTION** was **SECONDED** by Ms. Peterson and **PASSED** by unanimous consent.

PUBLIC HEARINGS

a. <u>CHILD GROUP DAYCARE – 9674 FALMOUTH DRIVE – PARCEL K-11-35-109-160</u> – TO CONSIDER THE SPECIAL LAND USE REVIEW APPLICATION OF MELINDA CUTLIFF TO PERMIT A CHILD GROUP DAYCARE HOME, PROVIDING CARE FOR UP TO TWELVE (12) CHILDREN ON A SITE ZONED R-3 ONE-FAMILY RESIDENTIAL.

Sally Elmiger (Planning Consultant- Carlisle Wortman) informed the Commission that the application is for a Special Land Use permit to establish a Child Group Day Care Home, providing care for up to twelve (12) children, for a site zoned R-3 One Family Residential, located at 9674 Falmouth Dr., Ypsilanti, MI 48197, Parcel K-11-35-109-160.

The ordinance requires that the Planning Commission conduct a public hearing to consider the special land use criteria in the ordinance, and the Zoning Enabling Act, or the state law that regulates zoning, requires the Planning Commission to approve a Group Child Care Home proposal if it meets the standards in the Zoning Enabling Act.

The state Zoning Enabling Act states that a Group Child Care Home shall be issued a special use permit, conditional use permit, or another similar permit if the Group Child Care Home meets all standards in the law.

The Zoning Enabling Act (ZEA) has the following standards/ requirements: A Group Child Care Home shall be issued a special use permit, conditional use permit, or other similar permit if the Group Child Care Home meets all the standards.

- a. Is located not closer than 1,500 feet to any of the following;
 - Another licensed group child care home.
 - An adult foster care small group home or large group home licensed under the Adult Foster Care Facility Licensing Act, 1979 PA 218, MCL 400.701 to 400.737.

- A facility offering substance use disorder services to 7 or more people that is licensed under part 62 of the Public Health Code, 1978 PA 368, MCL 333.6230 to 333.6251.
- A community correction center, resident home, halfway house, or other similar facility that houses an inmate population under the jurisdiction of the Department of Corrections.

Ms. Elmiger informed the Planning Commission that they had researched and did a check on the licensing Bureau of the state of Michigan for businesses, and there were no facilities within 1500 ft of the proposed site. The closest licensed group day care home is 9,134.4 ft. away.

- b. Has appropriate fencing for the safety of the children in the Group Child Care Home as determined by the local unit of government; Ms. Elmiger stated that the applicant had mentioned that the rear yard is fenced in with a 4' tall chain-link fence and a play structure is available for children to use. This was confirmed with a site visit.
- c. Maintains the property consistent with the visible characteristics of the neighborhood; The applicant has not proposed any changes to the exterior of the home, and it is consistent with the character of the neighborhood.
- d. Does not exceed 16 hours of operation during a 24-hour period. The local unit of government may limit but not prohibit the operation of a Group Child Care Home between the hours of 10 p.m. and 6 a.m.; The applicant proposes operating five (5) days a week from 7:00 a.m. to 6:00 p.m. (11 hours in a 24-hour period).
- e. Meets regulations, if any, governing signs used by a Group Child Care Home to identify itself; No signs are proposed, and none would be allowed per Sec. 1509.
- f. Meets regulations, if any, requiring a Group Child Care Home operator to provide off-street parking accommodation for its employees; The Planning department has considered two parking spaces (owner and caregiver). The Township zoning ordinance requires that two (2) parking spaces be

provided for the dwelling unit. The proposal meets the ordinance requirements.

Ms. Elmiger stated that the proposal does meet the state requirements, and the Planning Commission must approve this. The ordinance also has special land use standards, as stated in the proposal.

The Planning Department did provide several conditions. The Fire Chief and Building Official inspected for compliance with the current codes. The applicant will be providing the township with all licensing.

Also, the applicant should provide the following information:

- 1) Will the applicant's own children attend the Group Day Care? If yes, how many of the applicant's own children will attend?
- 2) The applicant should provide specific times when the outdoor play area will be used, including:
- Times of day
- Number of times per day
- Duration of outdoor playtime
- Number of children using the outdoor play area at a time
- 3) Is the applicant planning on providing any screening to the neighbors in the rear yard to help mitigate noise/activity during outdoor playtime? Does the Homeowners Association permit privacy fencing (i.e., six-foot-tall, opaque fencing)?
- 4) The applicant should confirm that they will continue to use the building as their residence and as its primary use.

The proposal does meet the state requirements for a Group Child Care Home of up to 12 children. The planning commission will have to consider the conditions as provided by the Planning Department.

PUBLIC HEARING OPENED AT 6:42 P.M.

• Leonard Hunter (9671 Falmouth Drive) stated his objection towards the opening of the day care; according to Article 10, Section 103, it will disturb the harmonious neighborhood because of increased traffic and

the noise from the backyard. Mr. Hunter shared his concern about the overflowing trash from the bins and the issues that can arise from street parking. The state requires all childcare providers to be 18 years or above and have the right qualifications. The neighborhood is in agreement that childcare would disrupt the peace in the area.

- Michael, asking (9635 Landsdowne Lane) shared that the noise from the childcare can disrupt the quietness of the community and the increase in traffic. The applicant's dog barks nonstop and has been a disturbance.
- Jamie Randall (9609 Landsdowne Lane) stated that she objects to the day care due to the noise and traffic that can arise from the day care.
- Corrine Falzon (9621 Landsdowne Lane) shared her concern that she purchased her home for retirement, and the noise/ traffic concern and this would cause a depreciation in the value of her property.
- Dan Beauregard (7158 Willington Lane) stated that having childcare in the neighborhood is not the right location.
- A resident informed the Planning Commission that the Board Packets have other objection letters from the neighbors.
- Sidney Sturgis (9647 Lansdowne Lane) requested more information due to the proposal for the upcoming day care.

PUBLIC HEARING CLOSED AT 6:53 P.M.

Commissioner Kirby informed the public that the Board would take into consideration the concerns shared regarding noise and other hindrances.

b. <u>CLASS A DESIGNATION – MNL INVESTMENTS LLC – 10131 TEXTILE</u>

<u>ROAD – PARCEL K-11-24-300-006</u> – TO CONSIDER THE CLASS A NONCONFORMING DESIGNATION APPLICATION OF MNL INVESTMENTS
LLC TO PERMIT THE SIGN COPY CHANGE OF AN EXISTING LEGAL
NON-CONFORMING POLE SIGN.

Ms. Elmiger informed the Planning Commission that the fueling station at 10131 Textile Road has an existing pole sign, and they would like to change the copy or the face of the existing pole sign with a new Sunoco sign and fuel prices.

Ms. Elmiger informed the Planning Commission that pole signs are no longer permitted in the zoning ordinance, and this sign is non-compliant due to its height. The Planning Commission may grant a Class A nonconforming sign designation. A determination is made after a public hearing that the continuance of a nonconforming sign meets the criteria.

Ms. Elmiger stated that the Planning Department has reviewed the proposal, and it has met the criteria; the new sign will not increase in height, and there will be no changes to the location. The existing sign is structurally sound and does not obstruct visibility or interfere with pedestrians or traffic, and the Planning Commission can add conditions to any motion if they choose to designate this as a class, a non-conforming sign.

PUBLIC HEARING OPENED AT 7:01 P.M.

(Hearing no comments)

PUBLIC HEARING CLOSED AT 7:01 P.M.

c. <u>CLASS A DESIGNATION – YPSI OIL COMPANY INC – 2120</u>
<u>RAWSONVILLE ROAD – PARCEL K-11-24-100-005</u> – TO CONSIDER THE
CLASS A NON-CONFORMING DESIGNATION APPLICATION OF YPSI
OIL COMPANY INC. TO PERMIT THE SIGN COPY CHANGE OF AN
EXISTING LEGAL NON-CONFORMING POLE SIGN.

Ms. Elmiger informed the Planning Commission that the Office of Community Standards is in receipt of a Class A Non-Conforming Designation Application from Your Signs & Graphics Inc. representing Ypsi Oil Company Inc. requesting a Class A Designation for one, legal non-conforming sign located at 2120 Rawsonville Road, Ypsilanti, MI 48198. Ypsi Oil Company Inc. seeks this approval so it can change the copy of the existing pole sign.

The new sign has 104 square feet of signage, and the old signage has 126 square feet of signage. The existing sign structure does not comply with the current ordinance, as it is taller than permitted (approx. 19 feet vs. 6 feet) and is greater in the sign area than permitted (104.25 sq. ft. vs. 50 sq. ft.). These features make the

existing sign non-conforming. The continuation of this sign as a Class A Non-Conforming Sign is not expected to affect public health, safety, or welfare. Its presence does not obstruct visibility or interfere with pedestrian or vehicular traffic. The sign's height and setback provide adequate distance from the sidewalk, and there are no adverse safety concerns associated with the requested sign face change.

PUBLIC HEARING OPENED AT 7:05 P.M.

(Hearing no comments)

PUBLIC HEARING CLOSED AT 7:05 P.M.

• **OLD BUSINESS**

None to Report.

• <u>NEW BUSINESS</u>

a. <u>CHILD GROUP DAYCARE – 9674 FALMOUTH DRIVE – PARCEL K-11-35-109-160</u> – TO CONSIDER THE SPECIAL LAND USE REVIEW APPLICATION OF MELINDA CUTLIFF TO PERMIT A CHILD GROUP DAYCARE HOME, PROVIDING CARE FOR UP TO TWELVE (12) CHILDREN ON A SITE ZONED R-3 ONE-FAMILY RESIDENTIAL.

Commissioner Kehrer stated that the Board thanked the public for sharing their concerns and comments.

Dennis McLain – Township Attorney informed the public that in 2006, the state of Michigan legislature adopted the Michigan Zoning Enabling Act. This Act governs the ability of cities, villages, townships and counties to enact, adopt and enforce their zoning rules at section 125; For a county or Township, a group child day care home shall be issued a special/conditional use permit, or other similar permit if the group day care home meets all standards. The township or county has no authority to deny the request if the applicant has met all standards.

The applicant Melinda Cutliff shared with the commissioners that the hour of outside play is a maximum of 2 hours (9 a.m. -11 a.m. or 3 p.m. -5 p.m.); one hour at a time depending on the weather.

Commissioner Peterson inquired if Ms. Cutliff's children would be onsite at the day care; Ms. Cutliff stated that the older ones would give a helping hand and would not be left alone with the children as per state licensing regulations.

Ms. Cutliff informed the Planning Commission that she is starting the day care with 6 kids, and her 14-year-old daughter would be a helper and not oversee the children. Ms. Cutliff stated that she is hiring an adult to provide the support.

Commissioner Kirby inquired about the type of activities and outdoor playsets; Ms. Cutliff stated that they have no plans for the yard, but a playhouse is available on the patio.

Commissioner Peterson informed Ms. Cutliff to consider the residents in the neighborhood and have the parking/ noise in control, and not to disrupt the peace in the community.

Commissioner Doe requested Ms. Cutliff to consider planting bushes at the back/ side fence that would help cut down the noise; Ms. Cutliff stated that she would consider the options.

MOTION: Ms. Kehrer **MOVED** to approve the Special Land Use permit request of Melinda Cutliff for the purpose of allowing a Group Day Care Home, providing care for up to twelve (12) children, for a site zoned R-3, Residential, located at 9674 Falmouth Drive, Parcel, K-11-35-109-160 with the following conditions:

- 1. The applicant shall agree to enter into a Special Land Use agreement (Per Sec.1004(4), Conditions of Approval), outlining the following conditions:
 - The applicant shall supply, prior to the operation of a Group Day Care Home, to the Office of Community Standards, a day care application and all documentation as required by the day care application, including but

not limited to, scaled and accurate survey drawing, correlated with a legal description and showing all existing buildings, drives, and other improvements; copy of state license; copy of inspection reports, drawings or pictures of the house layout, showing the rooms that will be utilized for the day care.

- The Group Day Care Home shall register with the Ypsilanti Township Community Development Department and shall continually have on file with the Township documentation of a valid license as required by the state.
- The Group Day Care Home shall be brought into compliance with all state building and fire codes pursuant to State Licensing Rules R400.1831— R400.1835 before beginning operation. Documentation of such compliance with state requirements shall be provided to the Office of Community Standards.
- To comply with the Township sign ordinance, no exterior signs advertising the Group Day Care Home are permitted.
- Due to the site's limited on-street parking, the number of caregivers will be limited to two (2) persons. Required off-street parking shall be provided during hours of operation.
- The site shall be licensed by the State and meet requirements for indoor and outdoor classrooms, crib and play areas, and an outdoor play area shall be provided pursuant to state licensing rules.
- 2. For the safety of all occupants and upon sufficient notice, the applicant shall permit, prior to the operation of a Group Day Care Home, the dwelling to be inspected by the Township Building official and/or Fire Marshal to ensure compliance with the adopted property maintenance code.
- 3. For the applicant, outdoor play will be limited to a maximum of two hours per day, one hour at a time, between the hours of 9 a.m. to 11 a.m. and 3 p.m. to 5 p.m.

The **MOTION** was **SECONDED** by Mr. Kirby.

Roll Call Vote: Mr. Doe (Yes); Mr. Kirby (Yes); Mr. Sinkule (Yes); Ms. Peterson (Yes); Ms. Kehrer (Yes).

MOTION PASSED.

b. <u>CLASS A DESIGNATION – MNL INVESTMENTS LLC – 10131 TEXTILE</u>

<u>ROAD – PARCEL K-11-24-300-006</u> – TO CONSIDER THE CLASS A NONCONFORMING DESIGNATION APPLICATION OF MNL INVESTMENTS
LLC TO PERMIT THE SIGN COPY CHANGE OF AN EXISTING LEGAL
NON-CONFORMING POLE SIGN.

MOTION: Mr. Doe **MOVED** to approve the Class A Non-Conforming Designation application submitted by Bazo Construction on behalf of MNL Investment LLC, for one legal non-conforming pole sign at 10131 Textile Road, Ypsilanti, MI 48197, Parcel K-11-24-300-006, with the following conditions:

- The property owner shall comply with all current Township Sign Ordinance standards regarding the maintenance and repair of the sign structure.
- The property owner shall comply with ordinance lighting standards regarding sign lighting.

The **MOTION** was **SECONDED** by Mr. Kirby.

Roll Call Vote: Mr. Doe (Yes); Mr. Kirby (Yes); Mr. Sinkule (Yes); Ms. Peterson (Yes); Ms. Kehrer (Yes).

MOTION PASSED.

c. <u>CLASS A DESIGNATION – YPSI OIL COMPANY INC – 2120</u>
<u>RAWSONVILLE ROAD – PARCEL K-11-24-100-005</u> – TO CONSIDER
THE CLASS A NON-CONFORMING DESIGNATION APPLICATION OF
YPSI OIL COMPANY INC. TO PERMIT THE SIGN COPY CHANGE OF AN
EXISTING LEGAL NON-CONFORMING POLE SIGN.

MOTION: Ms. Kehrer **MOVED** to approve the Class A Non-Conforming Designation application submitted by Your Signs & Graphics Inc. on behalf of Ypsi Oil Company Inc. for one legal non-conforming pole sign at 2120

Rawsonville Road, Ypsilanti, MI 48198, Parcel K-11-24-100-005, with the following conditions.

- The property owner shall comply with all current Township Sign Ordinance standards regarding the maintenance and repair of the sign structure.
- The property owner shall comply with the ordinance lighting standards regarding sign lighting.

The **MOTION** was **SECONDED** by Mr. Doe.

Roll Call Vote: Mr. Doe (Yes); Mr. Kirby (Yes); Mr. Sinkule (Yes); Ms. Peterson (Yes); Ms. Kehrer (Yes).

MOTION PASSED.

• OPEN DISCUSSIONS FOR ISSUES NOT ON AGENDA

• Correspondence Received

None to Report.

• Planning Commission Members

None to Report.

• Members of the Audience

Jeremy Haley, 1547, Wismer informed the Commissioners that Norfolk Homes has two sites for 100 homes at the \$200,000 price range. The recommendation is to bring in development builders for a lower price range and not high-priced homes, which would help in building the community.

• TOWNSHIP BOARD REPRESENTATIVE REPORT

None to Report.

• ZONING BOARD OF APPEALS REPRESENTATIVE REPORT

None to Report.

TOWNSHIP ATTORNEY REPORT

Dennis McLain – Township Attorney shared his concern for the people who voiced their opinion on the day care since the state balanced the needs for child day care versus the rights of people who live in the neighborhoods.

• PLANNING DEPARTMENT REPORT

None to Report.

• OTHER BUSINESS

None to Report.

• ADJOURNMENT

MOTION: Mr. Doe **MOVED** to adjourn at 7:33 p.m. The **MOTION** was **SECONDED** by Ms. Kehrer and **PASSED** by unanimous consent.

Respectively Submitted by Minutes Services LLC

Planning Department Report

Project Name: Zippy Car Wash						
Location: 1822 W. Michigan Ave., Ypsilanti, MI 48197						
Date:	July 15, 2025					
Sketch Prel Administra		v # n Review #	Final Final Plan	ative Pre Prelimi Plat Pro ned Deve	nary I ocess elopm	•
Contact / Reviewer	Consultants, Departments, & Agencies	Approved	Approved with Conditions	Denied	N/A	See email/letter attached or comments below
Planning Department	Township Planning Department		✓			See comments below
Carlisle/Wortman Associates	Planning Consultant		✓			See letter dated 07-02-2025
OHM / Stantec	Engineering Consultant		✓			See letter dated 06-27-2025
Steven Wallgren, Fire Marshal	Township Fire Department		\checkmark			See letter dated 06-27-2025
Dave Bellers, Building Official	Township Building Department				\checkmark	
Brian McCleery, Deputy Assessor	Township Assessing Department				\checkmark	
Scott Westover, Engineering Manager	Ypsilanti Community Utilities Authority		✓			See letter dated 06-27-2025
Gary Streight, Project Manager	Washtenaw County Road Commission					See email dated 07-07-2025
Theresa Marsik, Stormwater Engineer	Washtenaw County Water Resources Commission		✓			See letter dated 06-17-2025
James Drury, Permit Agent	Michigan Department of Transportation				√	

Planning Department Recommended Action:

At this time, the Zippy Auto Wash project is eligible for Preliminary Site Plan and Special Land Use review by the Township Planning Commission and has been scheduled for the Commission's meeting on July 22, 2025. As this project design requires variances, the only decision the Planning Commission can make is to postpone the project to allow the applicant to present their variance requests to the Zoning Board of Appeals. However, the Planning Commission can hold the Public Hearing at the July 22, 2025 meeting to gather comments from the public.

Please contact the Charter Township of Ypsilanti Planning Department if you have any questions or concerns.



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

Date: July 2, 2025

Preliminary Site Plan and Special Use Review For Ypsilanti Township, Michigan

Applicant: Zippy Auto Wash / Corey Weaver

Project Name: Zippy Car Wash

Plan Date: June 2, 2025

Location: 1822 W. Michigan Ave. (W. Michigan Ave. and Ellsworth intersection)

Zoning: RC, Regional Corridor – Form Based District

Action Requested: Preliminary Site Plan and Special Use Approval

PROJECT AND SITE DESCRIPTION

The applicant is proposing to build a 4,900 s.f. automated tunnel car wash with two pay terminals and 12 vacuum stations/parking spaces. The parking lot will also offer five (5) employee parking spaces. This site was previously used as a car wash.

Access to the site occurs off W. Michigan Ave. and Ellsworth.

The subject site is zoned RC, Regional Corridor, which is a Form Based District. The site is categorized as a Site Type C on the Regulating Plan. Site Type C permits vehicle washes as a Special Land Use. The Building Type proposed is A.2.

An aerial of the proposed site is shown on the next page.

Figure 1: Subject Site



Source: Nearmap (Captured April 17, 2025)

Size of Subject Site:

Gross: 3.28 acres (143,072 s.f.); Net: 2.49 acres (108,535 s.f.)

<u>Current Use of Subject Site</u>:

Car wash

Table 1: Adjacent Zoning and Existing Land Uses

Direction	Zoning	Existing Use
North	North Side of Ellsworth Rd.: RC, Regional Corridor (Form Based District) & RM-LD, Multiple Family Low Density	Single- and two-family residential, vacant
South	South Side of W. Michigan Ave.: RC, Regional Corridor (Form Based District)	Residential, vacant & medical office
East	RC, Regional Corridor & RM-LD, Multiple Family (Low Density)	Single-family residential
West	RC, Regional Corridor & GB, General Business	Vacant & Single-family residential

MASTER PLAN

The site is designated as a Regional Mixed-Use Corridor along both road frontages. Regional Mixed-Use Corridors are located along the busiest corridors, which support a high volume of both local and regional traffic. This area may include auto-oriented uses that draw customers both regionally and locally. Compared to the Neighborhood Mixed-Use corridors, this area is intended for higher-intensity and the largest scale of commercial development. While an auto wash is not specifically listed in the Master Plan's Regional Corridor description, it does list auto-oriented commercial facilities. An auto wash could be considered consistent with this description, as it could serve the regional market and local neighborhoods.

Applicable design concepts included the Master Plan include:

- Large parking lots shall be screened landscaped, and provided with pedestrian connections and other design amenities to break up excessive pavement and reduce visual impact of parking areas.
- Architectural design must create an interesting visual experience for both sidewalk users and automobiles.
- Ensure appropriate transition to adjacent neighborhoods.

We would consider the proposal to be consistent with the Master Plan for this site, and the site design and architectural considerations addressed in the proposal. Please see additional comments throughout this review.

NATURAL FEATURES

Topography:

The site was previously used as a car wash, and was almost fully graded to accommodate this use. The property very slightly slopes up from the intersection of W. Michigan Ave. to the west. The property is generally flat.

The proposed grading uses the existing developed portions of the site, and minimally modifies the topography by adding small, 2- to 3-foot-tall berms on the west side of the entry drives, and stormwater management basins across the site.

Woodlands/Trees:

The survey shows 24 existing "protected" trees on the site. The grading and construction activities will remove 12 of these trees; the other 12 trees will remain. Because all of the trees that will be removed are within the limits of construction and grading, replacement trees are not required.

The Landscape Plan has a note regarding the installation of tree protection fencing, as well as a detail specifying how the fencing is to be erected. A tree protection "symbol" should be shown on the site plan around trees proposed to remain, and a note added that states: "No parking of equipment or vehicles, or storage of materials shall be allowed within the tree protection fencing." Both the symbol and note should be added to the Demolition Plan (if any), the Grading Plan, and the Landscape Plan.

Items to be Addressed: 1) Add "symbol" indicating the location of tree protection fencing to the site plan around trees to remain on the Demolition Plan (if any), Grading Plan, and Landscape Plan. 2) Add note stating: "No parking of equipment or vehicles, or storage of materials shall be allowed within the tree protection fencing" to the Demolition Plan (if any), Grading Plan, and Landscape Plan.

AREA, WIDTH, HEIGHT, SETBACKS

The table below evaluates the proposal against the bulk requirements in the ordinance.

Table 2. Bulk Requirements

Table 2. Bulk Requirem	Required / Allowed	Provided	Complies with Ordinance
Min. Lot Area	Site Type C: Larger than 1 acre	Net: 2.49 acres (108,535 s.f.)	Complies
Front Build-to-Line (W. Michigan Ave.)	10-foot to 30-foot build-to-line; 75% of the building must meet the	Building located 10 feet from the W. Michigan Ave. ROW.	Complies
Front Build-to-Line (Ellsworth)	required build-to line.	Building located 83.5 feet from the Ellsworth ROW	See Below
Side Setback – West Property Line	Building Setback = 1.5 times building height (18 ft. x 1.5 = 27 ft.) 20-foot greenbelt	Building setback: +360 feet Greenbelt: 35 feet	Building Complies Greenbelt Complies
Rear Setback	10 feet 20-foot greenbelt	+10 feet setback 43 feet	Building Complies Greenbelt Complies
Impervious Surface	80% maximum	4.5%	See Below
Building Height	Minimum: 1 story/14 feet Maximum: 3 stories/ 38 feet	1 story Building: 18 feet	Complies
Parking	Located in side or rear yard; if abutting a required "build-to" line, screened with a minimum 30-inch masonry wall on the required build-to line, or within 5 feet of the required building line.	W. Michigan Ave: Parking is located in the rear yard. Ellsworth: Parking is located in the front yard.	See Below

Table 3. Bulk Requirements for Vehicle Wash Operations

Requirements of 1129.5, Specific Use Provisions for Vehicle Wash Operations			
	Required / Allowed	Provided	Complies with Ordinance
Min. Front Yard	50 feet; however, the Form Based Code requirements supersede this requirement	W. Michigan Ave.: 10 feet Ellsworth Rd.: 83.5 feet	See Below
Wash facilities within completely enclosed building			Complies
Vacuuming and drying areas may be outside, but no closer than 25-feet from residential district	25 feet from west property lines	145 - 310 feet	Complies
Stacking/Parking complies with Sec. 1205 and 1118	See Parking Section of this review		
Stacking/Parking hard- surfaced and dust free		Proposing concrete pavement	Complies
Prevent freezing at exit ramp		Project Description (Cover Sheet) states that entrance and exit pavement slabs shall be heated to prevent freezing; areas beyond shall be deiced regularly	Complies
Six-foot tall obscuring wall when abutting a residential district. Alternative screening materials may be approved by Planning Commission		Landscape screen	See Below

Front Build-To Line/Setback

The ordinance requires that at least 75% of the building must meet the front build-to line. Build-to lines are different than a "setback" line, in that the build-to line is the desired location for the front façade of the building. The proposal meets the build-to-line requirement along W. Michigan Ave., but due to the odd shape of the lot, not along Ellsworth. The applicant will need to apply for a variance.

Impervious Surface

The impervious surface figure provided on the plans seems to only include the building. The Zoning Ordinance defines "Impervious Surface Ratio" as follows: *The percentage of lot area covered by all buildings, pavement, driveways, parking lots, and all other structures (area of all structures, pavement, and parking lots divided by the gross lot area).*" The impervious surface calculation on the plans needs to be corrected.

Parking Location

The parking is located behind the building (rear yard) from the W. Michigan Ave. frontage. However, due to the unusual shape of the lot, the parking is located in the front yard from the Ellsworth frontage. Therefore, the applicant will need to apply for a variance.

Screen of Residential Properties

Sheet C-6, Landscape Plan, shows preservation of a large, vegetated area along Ellsworth Rd. between the car wash and the residence to the west. It also shows a staggered line of 16 Norway Spruce trees along the west property line adjacent to W. Michigan Ave., between the car wash and the vacant residential lot to the west. The Planning Commission may consider the proposed landscape screen sufficient as an alternative to a 6-foot-tall wall. If landscaping isn't sufficient on its own, the Commissioners may also consider additional alternatives (such as a fence in addition to the landscaping) if necessary.

Items to be Addressed: 1) Applicant to seek variance for the proposed building location relative to the Ellsworth Rd. build-to line. 2) Correct impervious surface calculation, per ordinance definition. 3) Applicant to seek variance for parking location in Ellsworth Rd. front yard. 4) Planning Commission to consider landscape screen as alternative to six-foot-tall wall requirement, or additional alternatives if necessary.

PARKING, LOADING

The ordinance requires a vehicle wash use to meet the minimum parking space requirement in Sec. 1205, *Access, Parking and Loading Requirements*, as well as the drive-through requirements in Sec. 1118, *Drive-In and Drive-Through Facilities*.

Table 4. Parking and Stacking Spaces

<u> </u>	Required	Provided	Complies with Ordinance
Parking Spaces	1 space for each employee or 3-5 employees = 5 spaces	5 spaces	Complies See Below
Stacking Spaces	Entry per lane: 8 spaces Exit per lane: 2 spaces	Entry: +12 spaces Exit: +2 spaces	Complies
Barrier-Free Spaces	1 space	0 spaces	See Below
Loading spaces	1 space	0 spaces	See Below
Bicycle parking	2 spaces	4 spaces	Complies

Parking Spaces

Five spaces are shown on the plans. However, one of these spaces must be designed as a barrier-free, "van accessible" space. The location of the spaces is not ideal for barrier-free access, being so far away from the building. However, it may be acceptable if a barrier-free route is established between the parking and the building. This route needs to be illustrated on the plans.

Parking Lot Design

The proposed employee parking spaces meet the dimensional requirements in the ordinance. The proposed vacuum stations exceed the minimum width by 4-feet, giving users enough space to keep their

Zippy Car Wash July 2, 2025

doors open to vacuum the inside. Maneuvering lanes in the parking/vacuum station area also meet ordinance requirements. The proposed escape lane also meets the minimum width requirement. Will this lane be signed with a "DO NOT ENTER" sign so that people using the vacuums don't enter the car wash lane?

Loading Space

One 10' x 25' loading space needs to be added to or labeled on the plans. The applicant should describe the type and size of delivery truck that will deliver supplies to the site.

Items to be Addressed: 1) Add one (1) barrier-free, van-accessible space to the employee parking area. 2) Show barrier-free route between employee parking area and building on plans. 3) Will a "DO NOT ENTER" sign be installed to keep vacuum users out of the car wash lane? 4) Add one (1) 10' x 25' loading space to the plans. 5) Applicant to describe the type and size of delivery truck that will deliver supplies to the site.

SITE ACCESS, CIRCULATION, TRAFFIC

The site is accessed from both W. Michigan Ave. and Ellsworth Rd. The project is re-using the existing driveway from Ellsworth. A new driveway from W. Michigan Ave. is proposed further west than the existing driveway.

Stacking Lanes

Vehicles for this use enter the car wash stacking lanes from both access driveways. Vehicles stack into two pay station lanes.

The location of the stacking lanes will not interfere with traffic on the street. The location of the lanes also does not interfere with vehicular circulation on the rest of the site, or parking maneuvers. There is an "escape" lane just to the east of the stacking lanes that would allow a car to exit the stacking before being washed. We consider this circulation system acceptable.

Sec. 1118 states that multi-lane drive-throughs shall be located in a manner that will be the least visible from a public thoroughfare. Given that this site has two "front" yards, it's challenging to locate the service components of the project so that they aren't visible from one of the two streets. The proposal shows three Prairiefire Crabapple trees on the west side of the Ellsworth entry drive, between Ellsworth and the stacking lanes. We consider the landscaping to meet this requirement.

Vacuum Station Access

A separate maneuvering lane allows vehicles into and out of the vacuum stations. It also allows washed vehicles to enter the vacuum stations, and exit the site. We consider the circulation into and out of the vacuum stations acceptable.

Sidewalks

As required, the plans show a new 8-foot-wide sidewalk/safety path along W. Michigan Ave., and Ellsworth Rd.

The Form Based Districts require pedestrian pathways between the site and the road right-of-way. A short 5-foot-wide sidewalk segment should be provided between the safety path along W. Michigan and Ellsworth and the pedestrian access door on the north side of the building.

The plans also show a sidewalk segment that creates a "short-cut" between the pathway along W. Michigan Ave., and the pathway along Ellsworth Rd. We consider this a positive feature of the proposal.

Items to be Addressed: 1) Add sidewalk connection from the safety path along the W. Michigan Ave. and Ellsworth Rd. rights-of-way to the pedestrian door on the north façade of the building.

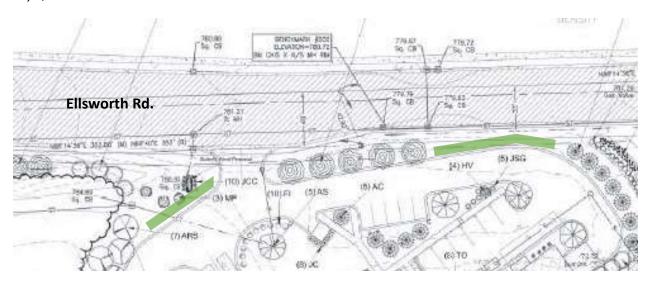
SCREENING & LANDSCAPING

Table 5. Landscaping

Table 5. Lanuscaping	Required	Provided	Complies with Ordinance
General Landscaping: 1 tree per 1,000 s.f. lawn 1 shrub per 500 s.f. lawn	16,781 s.f. lawn = 17 trees and 34 shrubs	17 trees and 34 shrubs	Complies
Street Yard Landscaping: 1 large deciduous tree per 40 l.f. of frontage 1 ornamental tree per 100 l.f. of frontage 1 shrub per 10 l.f. of frontage	W. Michigan Ave.: 511 L.F. / 40 = 13 trees 511 l.f. / 100 = 5 ornamental trees 511 l.f. / 10 = 51 shrubs Ellsworth Rd.: 527 l.f. / 40 = 13 trees 527 l.f. / 100 = 5 ornamental trees 527 l.f. / 100 = 53 shrubs	W. Michigan Ave.: 13 trees 5 ornamental trees 51 shrubs Ellsworth Rd.: 13 trees 6 ornamental trees 53 shrubs	Complies with Trees Complies with Ornamental Trees Complies with Shrubs
Parking Lot Landscaping: 1 large deciduous tree per 2,000 s.f. of pavement 1 large deciduous tree per 40 l.f. of parking lot perimeter	33,378 s.f. / 2,000 s.f. = 17 interior trees 535 l.f. / 40 = 13 perimeter trees	17 interior trees and 0 perimeter trees	Complies with Interior Trees

Perimeter Parking Lot Landscaping

The Landscape Requirements Chart on the Landscape Plan does not indicate that any parking lot perimeter trees have been proposed. We acknowledge that with the other requirements, it may be difficult to locate additional trees on the site. The ordinance gives the Planning Commission the ability to waive or modify the standards of Sec. 1301, Landscape Requirements, where the addition of new landscape material would serve no good purpose. While we don't see space for additional trees, 3-foottall shrubs along the maneuvering lane along Ellsworth Rd. could be installed to screen the vehicle lane from view of the road. The Planning Commission should discuss this alternative. The proposed locations (shown in green) are illustrated below:



Parking Lot Islands

Sec. 1301(3)(D) requires the following:

- 1) There shall be no more than twelve (12) parking spaces in a row without a landscape break. The plans comply with this requirement.
- 2) Parking lot end islands shall be a minimum of five (5) feet wide, and provided at the intersection of any parking aisles. The islands are the minimum dimensions, and their location complies with the ordinance.

Plant Material

The proposed sizes of the plant material meet the minimum ordinance requirements, except for the "Show Off" Forsythia. This plant should be at least a 5-gallon container to meet the minimum height requirement at planting.

Trash and Recycling Containers

The dumpster is located in a "front" yard along Ellsworth Rd., and is clearly visible from this street. Sec. 1302, *Trash and Recycling Receptacle*, requires that dumpsters be located in a side or rear yard, and not be adjacent to a public or private street. The proposed location is convenient; however, given the intent of this ordinance, we think a better (and accessible) location would be next to the edge of the westerly preserved woodland area. The Planning Commission should consider this alternative in light of the ordinance requirements. Even if the Planning Commission required the alternative location, a dumpster on this site will require a variance, as the alternative location is still in a "front" yard.

The dumpster screen detail (shown on Sheet C-8) will be a three-sided, 6-foot-tall masonry screen made of 8" masonry to match the building. The gate will be made of wood siding with a steel tube frame. The landscape plan shows that the dumpster screen itself will be shielded from south and west views with landscaping.

Items to be Addressed: 1) Planning Commission to consider requiring shrubs along the northerly maneuvering lane to screen Ellsworth Rd. 2) Increase size of "Show Off" Forsythia to minimum 5-gallon container. 3) Planning Commission to consider alternative dumpster location that is not directly in view of Ellsworth Rd. 4) Applicant to seek variance for locating dumpster screen in a "front" yard.

LIGHTING

A Lighting Plan (Sheet C-7) has been provided. The applicant is proposing to install six (6) single-luminaire pole-mounted fixtures. The building will be illuminated with two types of building-mounted fixtures.

The plans do not show any linear luminaires on the vacuum station arms. If such fixtures are proposed, they need to be shown on the photometric plan, with the associated lighting levels.

Table 6. Lighting

	Required	Proposed
Fixture is downward facing and shielded		Pole mounted: Complies Building mounted: Complies
Maximum illumination levels:		
Along residential property lines	0.5 footcandles	Complies
Along non-residential property lines	1.0 footcandles	N.A.
Anywhere on the ground	20 footcandles	Complies
Minimum illumination levels of parking lots	0.4 footcandles	Average Complies
Maximum height of pole-mounted fixtures (including base)	25 feet/ 18 feet adjacent to residential	See Below
Fixture color standard	Maximum 3500k	Pole mounted: Non-compliant Building mounted: Complies and non-compliant

Pole-Mounted Fixtures:

All of the pole-mounted fixtures are 22 feet tall. We would consider the one pole-mounted fixture at the driveway off W. Michigan Ave. to be adjacent to a residentially-zoned property. Therefore, this pole-mounted fixture should be lowered to 18 feet in height (including the base).

The ordinance calls for lighting to create the minimal interference with residential users. The pole-mounted fixture at the W. Michigan Ave. driveway is located on the east side of the driveway, which will be clearly visible from a future residence to the west. Is it possible to relocate this fixture to the west side of the driveway? This way, the fixture will be directed away from the future residence to the west. The Planning Commission should discuss this option with the applicant.

Fixture Color Standard

The pole-mounted fixture (RSX2 LED, identified as "A" on the plans), and the building-mounted fixture (D-Series Size 1, identified as "B" on the plans) have kelvin (or color) temperatures of 4000k. The ordinance allows up to 3500k in color temperature. The color temperature of these two fixtures needs to be brought down to 3500k.

Reduction in Nighttime Lighting

The ordinance requires that all outdoor lighting is reduced to at least 50% of the light level at full illumination one (1) hour after closing. The Lighting Plan includes a note stating that all outdoor light fixtures shall be turned off or reduced in lighting intensity between 11:00 pm and sunrise. This note should be revised to reflect Ypsilanti Township's requirement for nighttime lighting reductions.

Items to be Addressed: 1) Applicant to confirm if linear light fixtures will be mounted to the vacuum arms; if so, then linear light fixtures, and their light levels, need to be added to the photometric plan. 2) Lower the height of the pole-mounted fixture at the W. Michigan Ave. driveway to 18 feet (including base). 3) Planning Commission and applicant to discuss the possibility of relocating the pole-mounted fixture at W. Michigan Ave. driveway from the east side of the driveway to the west side of the driveway to direct light away from the adjacent residential lot. 4) Modify fixtures "A" and "B" so color temperature does not exceed 3500k. 5) Revise note on Lighting Plan regarding nighttime lighting reductions to reflect Ypsilanti Township's ordinance requirements.

ELEVATIONS AND FLOOR PLANS

Floor plans and elevations have been provided.

Floor Plans

The floor plans show one (1) car wash tunnel on the south side of the building. The north side of the building is occupied by an equipment room, office, and break room (with a restroom).

Elevations

The Form Based District includes architectural standards to create a character with visual interest, architectural consistency, and high-quality material use. Color renderings of the proposed building are included in the plan set. We have also provided an image from the Zippy Car Wash site on Carpenter Road:



Source: Google images

Elevations are comprised of the following material, and help to provide façade variation as follows:

- The façade materials are eight-inch and twelve-inch, split-face concrete block. Windows are trimmed with 8" single-score block, painted white.
- Gables are faced with "siding." The type of siding (i.e. vinyl siding, fiber cement siding, etc.) should be specified.

- The roof is a metal roof.
- The south façade (facing W. Michigan Ave.) is occupied by eight divided-light windows. The north façade (facing the parking lot and Ellsworth Rd.) is occupied by two entry doors into the "service" side of the building, two divided-light windows, and an enclosed alcove for mat washing.

Transparency

First floors facades facing a right-of-way are required to provide 50% transparency. First floor facades facing a parking area are required to provide 30% transparency. Transparency calculations have not been provided. We have scaled the plans to evaluate how the building design meets these standards. A transparency calculation should be provided for the north and south elevations.

- The façade facing W. Michigan Avel (or "front elevation") is approximately 150-feet long, and has eight large windows in the first floor (or between 2- and 8-feet above grade). The first-floor elevation is approximately 900 s.f., which would require 450 s.f. (or 50%) of window glazing on this elevation. The proposal shows approximately 480 s.f. of window glazing, meeting this requirement.
- The façade facing the parking lot and Ellsworth is also 150 feet long, and has two windows, and three doors. The first-floor elevation is approximately 900 s.f., which would require 270 s.f. (or 30%) of window and door glazing on this elevation. The proposal shows approximately 184 s.f. of window and door glazing. This is deficient by approximately 32%. The ordinance offers flexibility in this transparency requirement. Up to 50% of the transparency requirement (or in this case 135 s.f. of transparency) could be addressed by providing architectural wall design features, outdoor dining/seating, or permanent, non-commercial art. The plans show a picnic table next to the sidewalk short-cut between safety paths along both road frontages. The Planning Commission could consider this amenity toward the deficient transparency along the parking lot side of the building.
- The plans should specify that the windows are transparent, and not tinted, reflective or opaque glass (which is prohibited).

Items to be Addressed: 1) Plans to specify the type of siding to confirm that high-quality materials are being used. 2) Add transparency calculations for north and south facades to Architectural Plans. 3) Planning Commission to consider counting the picnic table along sidewalk short-cut between the W. Michigan safety path and the Ellsworth Rd. safety path for the deficient transparency on the north side of the building. 4) Specify on Architectural Plans that windows and doors are transparent (and not tinted, reflective or opaque glass).

SPECIAL USE

In the Regional Corridor District, a vehicle wash requires a special use. Standards for Special Use review are set forth in Section 1003. The Planning Commission shall review the particular circumstances and facts of each proposed use in terms of the following standards and required findings, and with respect to any additional standards set forth in this Ordinance. The Planning Commission shall find and report adequate data, information, and evidence showing that the proposed use meets all required standards:

- 1. Will be harmonious, and in accordance with the objectives, intent, and purpose of this Ordinance.
- 2. Will be compatible with the natural environment and existing and future land uses in the vicinity.
- 3. Will be compatible with the Township master plans.
- 4. Will be served adequately by essential public facilities and services, such as highways, streets, police and fire protection, drainage ways and structures, refuse disposal, or that the persons or

- agencies responsible for the establishment of the proposed use shall be able to provide adequately for such services
- 5. Will not be detrimental, hazardous, or disturbing to existing or future neighboring uses, persons, property, or the public welfare.
- 6. Will not create additional requirements at public costs for public facilities and services that will be detrimental to the economic welfare of the community.

To confirm that the proposal meets the standard that the use is not disturbing to the existing residential neighbors, we ask the applicant to provide the following information:

- 1. Proposed hours of operation.
- 2. Will vacuums be available when the car wash tunnel is closed for the night?

Regarding the other criteria, we find that the standards have been met. Our comments regarding how this proposal compares to the remaining Special Land Use standards follow:

- The intersection of W. Michigan Ave. and Ellsworth are designated as a Regional Corridor, intended to support a high volume of both local and regional traffic. This corridor type accommodates large national chains and auto-oriented uses that draw customers both regionally and locally. The proposed use is consistent with the intent of this district.
- The proposed use of the site as a vehicle wash can serve both the regional market, but also local neighborhoods, making this use consistent with the Master Plan.
- The project will redevelop the site, including sidewalk installation along both road frontages, landscaping, and lighting.
- The site was previously used by a car wash, and can adequately be served with public facilities and services
- The development of this site will not be detrimental to the future use and development of the corridor.

Items to be Addressed: 1) Applicant to provide proposed hours of operation. 2) Applicant to describe if vacuum stations are available when the car wash building is closed for the night.

RECOMMENDATIONS

The proposal will require three variances: building location relative to Ellsworth Rd., parking located in the Ellsworth Rd. front yard, and dumpster screen located in the Ellsworth Rd. front yard. All three variances are due to the unusual shape of the lot, and the fact that the lot has two front yards. Per Article IX, *Site Plan Review*, when variances are needed, the Planning Commission must postpone any decision until the applicant's variance requests have been considered by the Zoning Board of Appeals (ZBA). After the ZBA determinations are made, then the applicant can return to the Planning Commission for a decision on both the Special Land Use and Site Plan.

However, the Planning Commission may conduct the required Public Hearing at the same time as its initial consideration of the Site Plan.

A summary of our comments follows. Note that we have organized our comments by first listing ordinance alternatives the Planning Commission may consider, and then the needed changes to the site plan that the applicant will need to make.

PLANNING COMMISSION: Alternatives for Consideration –

- 1) Consider proposed landscape screen (next to west property line that abuts W. Michigan Ave.) as an alternative to the six-foot-tall wall requirement, or propose additional screening alternatives.
- 2) Consider requiring shrubs along the northerly maneuvering lane to screen Ellsworth Rd. See Pg. 9 for illustration.
- 3) Consider alternative dumpster location that is not directly in view of Ellsworth Rd.
- 4) Discuss with applicant the possibility of relocating the pole-mounted light fixture at W. Michigan Ave. driveway from the east side of the driveway to the west side of the driveway to direct light away from the adjacent residential lot.
- 5) Consider counting the picnic table along the sidewalk shortcut between the W. Michigan Ave. safety path and the Ellsworth Rd. safety path for the deficient transparency on the north side of the building.

<u>APPLICANT: Revisions to Site Plan Submission/Variances –</u> The applicant should revise the submission as follows:

Special Land Use

- 1) Provide proposed hours of operation.
- 2) Describe if vacuum stations are available when the car wash building is closed for the night.

Natural Features

- 1) Add "symbol" indicating the location of tree protection fencing to the site plan around trees to remain on the Demolition Plan (if any), Grading Plan, and Landscape Plan.
- 2) Add note stating: "No parking of equipment or vehicles, or storage of materials shall be allowed within the tree protection fencing" to the Demolition Plan (if any), Grading Plan, and Landscape Plan.

Area, Width, Height, Setbacks (Bulk Requirements)

- 1) Seek variance for the proposed building location relative to the Ellsworth Rd. build-to line.
- 2) Correct impervious surface calculation, per ordinance definition.
- 3) Seek a variance for parking location in Ellsworth Rd. front yard.

Parking and Loading

- 1) Add one (1) barrier-free, van-accessible space to the employee parking area.
- 2) Show barrier-free route between employee parking area and building on plans.
- 3) Will a "DO NOT ENTER" sign be installed to keep vacuum users out of the car wash lane?
- 4) Add one (1) 10' x 25' loading space to the plans.
- 5) Describe the type and size of delivery truck that will deliver supplies to the site.

Site Access, Circulation, Traffic

1) Add sidewalk connections from the safety path along the W. Michigan Ave. and Ellsworth Rd. rights-of-way to the pedestrian door on the north façade of the building.

Screening and Landscaping

- 1) Increase size of "Show Off" Forsythia to minimum 5-gallon container.
- 2) Seek variance for locating dumpster screen in a "front" yard.

Lighting

- 1) Confirm if linear light fixtures will be mounted to the vacuum arms; if so, then linear light fixtures, and their light levels, need to be added to the photometric plan.
- 2) Lower the height of the pole-mounted fixture at the W. Michigan Ave. driveway to 18 feet (including base).
- 3) Modify fixtures "A" and "B" so color temperature does not exceed 3500k.
- 4) Revise note on Lighting Plan regarding nighttime lighting reductions to reflect Ypsilanti Township's ordinance requirements.

Elevations and Floor Plans

- 1) Specify the type of siding on Architectural Plans to confirm that high-quality materials are being used
- 2) Add transparency calculations for north and south facades to Architectural Plans.
- 3) Specify on Architectural Plans that windows and doors are transparent (and not tinted, reflective or opaque glass).

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

President

CARLISLE/WORTMAN ASSOC., INC. Sally M. Elmiger, AICP, LEED AP

Principal



ARCHITECTS. ENGINEERS. PLANNERS.

June 27, 2025

Mr. Mark Yandrick Township Planning Director Charter Township of Ypsilanti 7200 S. Huron River Drive Ypsilanti, MI 48197

RE: Zippy

Preliminary Site Plan Review #1

Dear Ms. Doppke:

We have completed the first preliminary site plan review of the plans dated June 2, 2025 and received by OHM Advisors on June 25, 2025.

At this time, the plans are <u>recommended</u> for consideration by the Township Planning Commission, contingent on the following comments being addressed. Preliminary detailed engineering comments have been provided to the applicant as a courtesy and shall be addressed prior to submitting detailed engineering plans for review.

A brief description of the project has been provided below, followed by our comments and a list of anticipated required permits and approvals. Comments in Section C are detailed in nature, do not influence the overall site layout, and can be addressed during the detailed engineering drawing submittal.

A. PROJECT AND SITE DESCRIPTION

The applicant is proposing a Zippy car wash at 1822 W Michigan Avenue. The existing building will be demolished. Associated site improvements, including parking, landscaping, utilities, and stormwater management, are also being proposed.

The site will be serviced by connection to the existing water main and sanitary sewer along W Michigan Avenue. The stormwater runoff will be managed by an underground detention basin and conveyance system.

B. SITE PLAN COMMENTS

Utilities

 The applicant shall verify that all utilities shown on the Landscape Plan match the proposed Site Plan as there currently appear to be discrepancies.

Paving and Grading

- 2. The applicant shall provide truck turning templates (fire truck, garbage truck, etc.) to ensure sufficient space for maneuverability has been provided. The applicant shall also label the proposed loading zone.
- 3. The applicant shall note that all sidewalk perpendicular to parking spaces shall be seven (7) feet wide.
- 4. The applicant shall label the proposed barrier-free parking space and access aisle for clarity.



C. PRELIMINARY DETAILED ENGINEERING COMMENTS

The following comments shall be addressed by the applicant during the detailed engineering drawing submittal, and do not affect the recommendation for approval to the Township of Ypsilanti Planning Commission. It should be noted that this is not an all-inclusive list and additional comments may be generated as new information is presented.

- 1. The applicant shall provide spot elevations at all four (4) corners of all barrier-free parking spaces, access aisles, ramps, and level landings, as well as along both sides of all proposed sidewalk/pathway at 50-foot intervals. The applicant shall note that the cross-slope shall not exceed 2%, per ADA Standards.
- 2. The applicant shall provide utility pipe profiles, including pipe diameter, material, length, slope, and hydraulic grade line for all proposed storm sewer.
- 3. The applicant shall provide a detailed drainage area map that provides drainage areas corresponding to each catch basin, including their acreages, C-factors, and C-factor calculations.
- 4. The applicant shall review and revise the outlet orifice calculations as it currently appears the minimum time of detention for the first flush storm (24 hours) was not met. The applicant shall update all subsequent calculations accordingly.
- 5. The applicant shall provide conveyance calculations for the proposed stormwater management system on the plans.
- 6. The applicant shall provide a Certificate of Outlet, signed and sealed by a registered engineer in the State of Michigan, on the plans.
- 7. The applicant shall clarify if soil borings/test pits were performed. If so, their logs and locations shall be provided on the plans and a copy of the geotechnical report shall be provided to this office.
- 8. The applicant shall include the heated slab with the trench drain within the maintenance schedule(s). The applicant shall also remove the wetlands and other components from the maintenance schedule(s) that are not present on-site for clarity.
- 9. The applicant shall note that storm sewer pipe shall be RCP C-76, per Township Standards, or the load carrying design analysis for use of other materials for the proposed depth conditions shall be provided on the plans.
- 10. The applicant shall provide the proposed size and material of all storm sewer.
- 11. The applicant shall locate the curb stop box and all sanitary cleanouts outside of pavement areas.
- 12. The applicant shall provide a detail of the water reclaim/sediment removal system.
- 13. The applicant shall provide a quantity list for all proposed utilities (water, sanitary, storm) on the Cover Sheet, delineated by existing or proposed road right-of-way or easement, per Township Standards.
- 14. It is recommended that a different HMA mix design is utilized (i.e. 4E) due to experience with 13A mix designs prematurely failing.
- 15. The applicant shall provide the Ypsilanti Township Standard Detail Sheets, including the SESC Detail Sheet, within the plan set. These can be obtained by emailing stacie.monte@ohm-advisors.com.



D. REQUIRED PERMITS & APPROVALS

The following outside agency reviews and permits will be required for the project. Copies of any correspondence between the applicant and the review agencies, as well as the permit or waiver, shall be sent to both the Township and OHM Advisors (email: stacie.monte@ohm-advisors.com).

- **▼ Ypsilanti Community Utilities Authority (YCUA):** Review and approval of all water main and sanitary sewer improvements is required.
- Ypsilanti Township Fire Department: Review and approval is required.
- Washtenaw County Water Resources Commissioner's Office (WCWRC): Review and approval is required.
- Washtenaw County Road Commission (WCRC): Review and approval is required.
- ▼ **Ypsilanti Township Office of Community Standards:** A Soil Erosion and Sedimentation Control permit shall be secured from the Ypsilanti Township Office of Community Standards.

Should you have any questions regarding this matter, please contact this office at (734) 466-4580.

Sincerely, OHM Advisors

Stacie L. Monte

Matthew D. Parks, P.E.

SLM/MDP

cc: Lauren Doppke, Township Staff Planner

Doug Winters, Township Attorney

Sally Elmiger, CWA, Township Planning Consultant

Steven Wallgren, Township Fire Marshall

Scott Westover, P.E., YCUA

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CHARTER TOWNSHIP OF YPSILANTI FIRE DEPARTMENT

BUREAU OF FIRE PREVENTION

222 South Ford Boulevard, Ypsilanti, MI 48198



June 27, 2025

Sally Elmiger, Planning and Development Consultant Charter Township of Ypsilanti 7200 S. Huron River Drive Ypsilanti, MI 48197

RE: Preliminary (non-residential) Site Plan Review #1

Project Name: Zippy Auto Wash

Project Location: 1822 W. Michigan Ypsilanti, MI 48197

Plan Date: 6/2/2025 Applicable Codes: IFC 2018

Designer: Vanston/O'Brien, Inc. Builders

Engineering address: 8150 Jackson Road, Suite A, Ann Arbor, MI 48103

Status of Review

Status of review: Approved as Submitted

All pages were reviewed.

Site Coverage - Access

Comments: Fire department access is adequate.

Knox Box:

Comments: Knox box location is accessible.

Hydrant

Comments: Hydrant location is acceptable.

Best regards,

Steve Wallgren, Fire Marshal

Charter Township of Ypsilanti Fire Department

CFPS, CFI I



YPSILANTI COMMUNITY UTILITIES AUTHORITY

2777 STATE ROAD YPSILANTI, MICHIGAN 48198-9112 TELEPHONE: 734-484-4600 WEBSITE: www.ycua.org

June 25, 2025

VIA ELECTRONIC MAIL

Mr. Mark Yandrick, Planning Director Office of Community Standards CHARTER TOWNSHIP OF YPSILANTI 7200 S. Huron River Drive Ypsilanti, MI 48197

Re: Preliminary (non-residential) Site Plan Review #1

Zippy Auto Wash

Charter Township of Ypsilanti (Plan Date: 06-02-2025)

Dear Mr. Yandrick:

In response to the electronic mail message from your office dated June 25, 2025, we have reviewed the referenced plans with regards to water supply and wastewater system design. The plans are acceptable to YCUA for this stage of review. However, the following comment is offered for the Detailed Engineering phase of the project.

1. The existing building has a 4" diameter water service connected to the existing 8" diameter just south of the fire hydrant near the westerly property line. As it appears the existing water service will not be used as part of the proposed redevelopment of the site, the project will be responsible for disconnecting the service from the existing water main.

Connection fees do not apply to the proposed project. However, please note that **the construction phase escrow deposit, YCUA administration fee, and record plan guarantee**, must be paid to YCUA by the Applicant, with a receipt delivered to the Township, before either the building or soil and grading permit is issued. The construction phase escrow deposit and associated fees and deposits and the entity responsible for maintaining those accounts will be determined during the Detailed Engineering phase of the project in conjunction with your office and the Township Engineer. Should there be any questions please contact this office.

Sincerely,

System digital stepature

SCOTT D. WESTOVER, P.E., Director of Engineering Ypsilanti Community Utilities Authority

cc: Mr. Luke Blackburn, Mr. Sean Knapp, File, YCUA

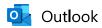
Ms. Sally Elmiger, Ms. Lauren Doppke, Township Planning Department

Mr. Steve Wallgren, Township Fire Department

Mr. Matt Parks, P.E., Ms. Stacie Monte, Township Engineer

Mr. Corey Weaver, Applicant

Mr. Greg Heim, P.E., Applicant's design engineer



WCRC App# 21423 Corey Weaver Ellsworth Rd Ypsilanti Twp - Zippys Car Wash

From Taylor, Elizabeth <taylore@wcroads.org>

Date Mon 7/7/2025 1:35 PM

To mrweaver@comcast.net <mrweaver@comcast.net>

Cc Streight, Gary <streightg@wcroads.org>; Sally Elmiger <selmiger@ypsitownship.org>; Brenda Stumbo
 <bstumbo@ypsitownship.org>; Debbie Swanson <dswanson@ypsitownship.org>; Matt Parks <matt.parks@ohm-advisors.com>; Permits <permits@wcroads.org>

2 attachments (14 MB)

App 21423 Plans Rec. 06-04-25.pdf; App 21423 Rec. 06-04-25.pdf;

Some people who received this message don't often get email from taylore@wcroads.org. Learn why this is important

Dear Applicant:

I have reviewed your plans for the two commercial driveway approaches at 1822 West Michigan Avenue and require the following revisions:

- 1. Our preliminary field evaluation of the new driveway approach along the south side of the property along Michigan Avenue revealed that the "as-staked" proposed location does not make site distancing requirements as per Section 3.6 of WCRC's Procedures & Regulations for Permit Activities (attached to this email).
- 2. The existing driveway on the north side of the property also does not meet the WCRC the site distancing requirements, due to vegetation.
- 3. Both areas will likely require substantial clearing in the right-of-way (ROW) and may even require clearing the ROW of the adjacent property.
- 4. In accordance with Section 3.6, please revise drawings to include the "site distancing area" on either side of the drive approaches with a notation that these areas must remain free of obstructions that might block a driver's view.
- 5. Clearing for site distancing in these areas may impact trees. Any trees with a diameter of 6" or greater that are being removed will have to be specifically indicated in the plan along with the species.
- 6. WCRC will also require a signed wood disposal agreement from property owners whose trees will be impacted by the project.
- 7. If clearing and/or grading is required outside of the property boundaries, but still within the ROW, WCRC with require the applicant apply for a separate grading permit.
- 8. For the existing driveway approach along Ellsworth Road, WCRC requires the following notes be added to the approved permit drawings:
 - a. The Contractor shall rebuild the existing driveway in-kind, meaning without alterations to the driveway elevation, configuration, dimensions, and geometrics to

the greatest extent possible.

- 9. Drawing C3 shows a "monument sign" along Ellsworth Road, on the west side of the driveway approach, please provide dimension in relation to the ROW and/or curb and gutter for this sign.
- 10. The WCRC Traffic and Safety Department reviewed the sidewalk layout on the east side of the development with ADA compliance. WCRC is concerned that at the intersection of Ellsworth and Michigan Avenue there is currently not an ADA compliant pedestrian crossing. The proposed sidewalk extending to the easternmost tip of the property at the intersection presents an issue because it appears to "tempt" pedestrians to cross Ellsworth take refuge on the Zippy Car Wash property and then proceed to walk across Michigan Avenue. WCRC proposes ending the sidewalk at the proposed picnic table area and not having it continue to the tip of the easternmost edge of the property. Otherwise, there are significant safety concerns with extending the sidewalk to wrap around the tip of the property and remediating the pedestrian safety issues would substantial alterations to this intersection (including but not limited to ADA compliant pedestrian crossings and signalized intersections).
- 11. Please provide the following General Notes (C-1) acknowledging the following:
 - a. Note 6 should be revised to include Washtenaw County Road Commission (WCRC)
 - b. Add the following comments:
 - i. Contractor/Permit Holder shall restore disturbed areas within the road right-of-way in accordance with WCRC standards.
 - ii. All material used within the WCRC road right-of-way shall conform with current WCRC and MDOT specifications.
 - iii. The driveway approach shall be constructed so that the existing drainage is not adversely affected.
 - iv. Contractor/Applicant must maintain access to adjacent driveways during construction.
 - v. The two driveway approaches shall be constructed so that the existing roadway drainage is not adversely affected.
 - vi. The two driveway approaches shall match the grade of the existing edge of pavement.
 - vii. The driveway approach shall be constructed of materials that comply with MDOT and WCRC standards.
 - viii. All traffic control devices shall be maintained in accordance with Part 6 of the current MMUTCD and shall be MASH compliant.
- 12. Final acceptance of work in the right-of-way and subsequent permit closure are subject to WCRC approval.
- 13. Provide a cost estimate for all work within the ROW.
- 14. An inspection fee equal to 3% of the approved estimate, \$500 minimum, along with a deposit equal to the full amount of the estimate in the form of a letter of credit or check is required.

We ask that all questions and revised plans be submitted to <u>permits@wcroads.org</u>. No work shall occur until a permit has been issued.

Respectfully Submitted, Beth

Elizabeth Taylor, P.E.

Project Manager - Permits



Washtenaw County Road Commission 555 N. Zeeb Road, Ann Arbor, Michigan

Direct: (734) 327-6671 | Main: (734) 761-1500 | Cell: (734) 845-2066

wcroads.org | Follow us on Facebook



GRETCHEN DRISKELL

Water Resources Commissioner 705 N Zeeb Road Ann Arbor, MI 48103 734-222-6860

Drains@washtenaw.org

Harry Sheehan Chief Deputy Water Resources Commissioner

Scott Miller P.E. Deputy Water Resources Commissioner

Theo Eggermont Public Works Director

June 16, 2025

Mr. Greg Heim, P.E. Vanston/O'Brien Inc. 8150 Jackson Road, Suite A Ann Arbor, Michigan 48103 RE: Zippy Auto Wash
W. Michigan Ave and E. Ellsworth Rd
Ypsilanti Township, Michigan
WCWRC Project No. 12367

Dear Mr. Heim:

This office has reviewed the preliminary site plans for the above-referenced project to be located in Ypsilanti Township. These plans have a date of June 2, 2025 and were received via e-mail on June 2, 2025. As a result of our review, we would like to offer the following comments:

- The engineer's certificate of outlet, accompanied by corresponding calculations and documentation, should be submitted to our office for review.
 - a. The certificate of outlet is to be provided by the design engineer during the review process to certify that the receiving channel has adequate capacity to receive the detention basin discharge.
- 2. Since the stormwater management system will be private, any reference to inspection, maintenance, or assessment by the County must be removed from the plan set in general, and specifically from note C of the maintenance tasks shown on plan sheet C-5.
- 3. The minimum time of detention of 24 hours for the first flush storm was not met with the selected outlet orifice configuration.
- Please see the attached invoice for the current fees and remit these fees upon receipt. As requested, the invoice is being submitted directly to Zippy Auto Wash.

Mr. Greg Heim, P.E. Vanston/O'Brien Inc. Zippy Auto Wash WCWRC Project No. 12367 Page 2 of 2

At your convenience, please send us a complete set of revised plans and the additional information requested above so that we may continue our review. If you have any questions, please contact our office.

Sincerely,

Theresa M. Marsik, P.E.

Theren M. Marik

Stormwater Engineer

(approval\Zippy Auto Wash W. Michigan Ave and E. Ellsworth rev1)

cc: Corey Weaver, Zippy Auto Wash

Brenda Stumbo, Ypsilanti Township Supervisor

Lauren Doppke, Ypsilanti Township Staff Planner

Sally Elmiger, Ypsilanti Township Planning Department (Carlisle Wortman Associates)

Doug Winters, McLain and Winters

Matt Parks, P.E., Ypsilanti Township Engineer (OHM) Stacie Monte, Ypsilanti Township Engineer (OHM)







Washtenaw County Water Resources PO Box 8645 Ann Arbor, MI 48107-8645 drains@washtenaw.org 734-222-6860

CUSTOMER	INVOICE DATE	INVOICE	NUMBER	AMOUN	IT PAID DI	UE DATE	INVO	DICE TOTAL DUE
ZIPPY AUTOWASH	06/16/2025	16	3244		\$0.00 0 7	7/16/2025		\$1,181.25
DESCRIPTION	QUANTITY	PRICE	UOM	ORIGINAL BILL	ADJUSTED		PAID	AMOUNT DUE
Engineering Site Inspection Fees WO 12367 Engineering Site Inspection Fees	2.00	\$135.000000	EACH	\$270.00	\$0.00		\$0.00	\$270.00
Engineering Review Fees WO 12367 Engineering Review Fees	6.75	\$135.000000	EACH	\$911.25	\$0.00		\$0.00	\$911.25
				Inv	voice Total:			\$1,181.25

WATER RESOURCES ZIPPY AUTO WASH WCWRC PROJECT #12367



Washtenaw County Water Resources PO Box 8645 Ann Arbor, MI 48107-8645 drains@washtenaw.org 734-222-6860

Gene	eral	Inv	oi!	се
		D = : 4	D	4:

Remit Portion

Invoice Date	06/16/2025
Invoice Number	16244
Customer Number	10430

Amount Paid

Due Date	07/16/2025
Invoice Total Due	\$1,181.25

Please note your invoice number on your payment.

ZIPPY AUTOWASH WEAVER, COREY 233 W ELLSWORTH ANN ARBOR, MI 48108

Charter Township of Ypsilanti Office of Community Standards BY

7200 S. Huron Drive, Ypsilanti, MI 48197 Phone: (734) 544-4000 ext. #1

RECEIVED

SPECIAL CONDITIONAL USE/ USES SUBJECT TO SPECIAL **CONDITIONS APPLICATION**

JUN 0 3 2025 Website: https://ypsitownship.org

I. PROJECT LOCATION YPS	SILANTI TOWNSHIP	000		
Address: 1822 W Michigan Ave	OC Parcel ID #: K-11- 39-252-	-022 Zoni	ng RC	
Lot Number: Subdivision:				
Describe proposed use: <u>Drive Thru</u>	Automatic Vehicle Wash facility	with exterior vacuur	n services	
9				
II. APPLICANT/PROPERTY OWNER Applicant: Zippy Auto Wash		Phone: 734-424-0661	8	
Address: P.O. Box 550	City: Saline	Phone: 734-424-0661	7in· 48176	
Property Owner (if different than appli	icant):	Phone:	_ zip	
Address:	City:	State: MI Phone: State:	_ Zip:	
III. FEES	Ducalidanus of foot	Non-refundable:	¢1 000	
Total: \$_1000	Breakdown of fee:	Refundable:	\$1,000 \$1,000	
attached to this apply Scaled and accurate survey drawing other improvements. Section of Zoning Ordinance involution [Daycare only] Copy of State license. Copy of inspection reports.	he fee-simple owner, the owner's signification. Ing, correlated with a legal description and the series of the se	and showing all existing /ehicle wash	buildings, drives and	
GE. Wom	Corey Weaver	6/2/25		
Applicant Signature	Print Name	Date		
Approved Denied				
Zoning Administrator Signature	Print Name	Date		

Please note: Application cannot be appealed to the Board of Appeals. If denied by the Planning Commission, re-application can be made to the Planning Commission after 365 days, after the date of this application, except on the grounds of new evidence or proof of changed conditions found by the Planning Commission to be valid.



Charter Township of Ypsilanti Office of Community Standards 7200 S. Huron Drive, Ypsilanti, MI 48197 Phone: (734) 544-4000 ext. #1

Website: https://ypsitownship.org

OFFICE USE ONLY

All special conditional use applications	TANACA ITRIMUTEA.
☐ The application is filled out in its entirety and	☐ Scaled and accurate survey drawing, correlated with
includes the signature of the applicant and, if different than the applicant, the property owner. Name(s) and address(es) of all record owner(s) and proof of ownership. If the applicant is not the property owner, written and signed permission from the property owner is required A detailed description of the proposed use. A site plan, if requested by the planning commission Fees	☐ All property lines and dimensions



Charter Township of Ypsilanti Office of Community Standards 7200 S. Huron Drive, Ypsilanti, MI 48197 Phone: (734) 544-4000 ext. #1 Website: https://ypsitownship.org



SITE PLAN REVIEW **APPLICATION**

YPSILANTI TOWNSHIP

I. APPLICATION/DEVELOPMENT TYPE	OCS		
Development:	Application:		
 Subdivision Multi-family/Condominium Site Condominium ✓ Planned Development Non-residential 	☐ Administrative S ☐ Sketch Site Plan ☐ Full Site Plan Rev ☐ Revisions to app ☐ Tentative Prelim ☐ Final Preliminary ☐ Final Plat Proces ☐ Stage I (for Plans	Review view roved plan inary Plat v Plat s ned Developm	ent)
II. PROJECT LOCATION			
Address: 1822 W Michigan Ave	City: Ypsilanti	State: MI	Zip: 48197
Parcel ID #: K-11- 39-252-022 Zonin	g RC	otace	
Lot Number: Subdivision: Property dimensions: 300x700 Acreage:	3.28		
Name of project/Proposed development: Zippy Auto	Wash		
Legal description of Property:			
Land in the Township of Ypsilanti, County of Washtenaw, Michiga of French Claim No. 690, Washtenaw County, Michigan, as record between Lets 19, 20, 21 and 22 of said Subdivision. Also, beginn 20°06'00" East 51.20 feet from the Southeast corner of Triangle Fithence North 20°06'00" West 280.87 feet; thence South 88°40'00 57°27'00" West 468.95 feet to the PLACE OF BEGINNING, being Washtenaw County, Michigan.	Park Subdivision, as recorded in Liber / of "East 491.95 feet to the center of Chicago	Plats, Page 26, W	vashtenaw County Records loan Avenue): thence South
Describe Proposed Project (including buildings/ stru	ctures/ # units):		
Automatic vehicle wash facility with on site vacuums, employee p	parking and underground detention.		
,			
II. APPLICANT INFORMATION		704 004 0000	
Applicant: Zippy Auto Wash - Corey Weaver	Phone:	734-904-3869	- 40470
Address: P.O.Box 550	City: Saline	State: Ml_	_ Zip: <u>48176</u>
Fax: Email: mrweaver@comcast.ne			
Property owner (if different than applicant):			
Address:	City:	State:	Zip:
Fax: Email:		724 424 0004	
Engineer: Vanston/O'Brien Inc Greg Heim	Phone:	734-424-0001	40400
Address: 8150 Jackson Road	City: Ann Arbor	State: Ml_	_ Zip: <u>48103</u>
Fax: Email: greg.heim@vanston.co	m		



Charter Township of Ypsilanti Office of Community Standards 7200 S. Huron Drive, Ypsilanti, MI 48197 Phone: (734) 544-4000 ext. #1 Website: https://ypsitownship.org

SITE PLAN REVIEW **APPLICATION**

VI. SCHEDULE OF FEES

		Preliminary Site Plan Review
	Non-refundable fee	Refundable deposit
		Less than one (1) acre: \$2,000
		One (1) acre to five acres: \$4,000
Full	\$500	Over five (5) acres to ten (10) acres: \$5,500
		Greater than ten (10) acres: \$5,500 + \$50 per acre over ten (10) acres
		Less than one (1) acre: \$1,500
Cl . I	4500	One (1) acre to five acres: \$2,000
Sketch	\$500	Over five (5) acres to ten (10) acres: \$2,500
		Greater than ten (10) acres: 25,500 + \$50 per acre over ten (10) acres
		Less than one (1) acre: \$1,000
A. L L. L. L	6100	One (1) acre to five acres: \$1,200
Administrative	\$100	Over five (5) acres to ten (10) acres: \$1,500
		Greater than ten (10) acres: \$1,500 + \$50 per acre over ten (10) acres
Dlamad		Less than one (1) acre: \$3,000
Planned	\$1,500 + \$20 per	One (1) acre to five acres: \$4,000
Development Stage	acre	Over five (5) acres to ten (10) acres: \$5,500
I and Rezoning		Greater than ten (10) acres: \$5,500 + \$50 per acre over ten (10) acres
Final Site Plan Review		
	Non-refundable fee	Refundable deposit
		Less than one (1) acre: \$3,000
Full	\$500	One (1) acre to five acres: \$4,000
ruii	7500	Over five (5) acres to ten (10) acres: \$5,500
	*	Greater than ten (10) acres: \$5,500 + \$50 per acre over ten (10) acres
		Less than one (1) acre: \$1,500
Sketch	\$500	One (1) acre to five acres: \$2,000
Skettii	7500	Over five (5) acres to ten (10) acres: \$2,500
		Greater than ten (10) acres: \$2,500 + \$50 per acre over ten (10) acres
		Less than one (1) acre: \$1,000
Administrative	\$100	One (1) acre to five acres: \$1,200
Administrative	7100	Over five (5) acres to ten (10) acres: \$1,500
		Greater than ten (10) acres: \$1,500 + \$50 per acre over ten (10) acres
Planned	4.000.000000000000000000000000000000000	Less than one (1) acre: \$3,000
Development Stage	\$1,500 + \$20 per	One (1) acre to five acres: \$4,000
I and Rezoning	acre	Over five (5) acres to ten (10) acres: \$5,500
T GITG REZOTTING		Greater than ten (10) acres: \$5,500 + \$50 per acre over ten (10) acres

_s_4500 **FEE TOTAL**

V. APPLICANT SIGNATURE			
GE. Lom	Corey Weaver	6/2/25	
Applicant Signature	Print Name	Date	



Charter Township of Ypsilanti Office of Community Standards

7200 S. Huron Drive, Ypsilanti, MI 48197 Phone: (734) 544-4000 ext. #1 Website: https://ypsitownship.org

SITE PLAN REVIEW APPLICATION

Site Plan Review applications The application is filled out in its entirety and **Proposed Plans** includes the signature of the applicant and, if One (1) signed and sealed copies different than the applicant, the property (24"x36") of the proposed plan owner. One (1) copy (11"x17") of the Fees proposed plan Check made out to Ypsilanti One (1) PDF digital copy of the Township with appropriate fees. proposed plan Please note: The same preliminary All contents detailed on the next site plan review fee will be charged pages for administrative, sketch, and for each subsequent submittal full site plans. Fees paid separately to Ypsilanti Community Utilities Authority Fees paid separately to Washtenaw County Road Commission and Water Resources Commissioner's Office Additional Documents: Woodland Protection application or the No Tree Affidavit, if applicable Traffic Impact Questionnaire Appropriate application and plans submitted to the Washtenaw County Road Commission and Water Resources Commissioner's Office



1822 W Michigan Avenue Ypsilanti Township, Michigan

Α	A.F.F.	ABOVE FINISH FLOOR
^	AC.	ACRE
	A/C ALUM.	AIR CONDITION ALUMINUM
	ASPH.	ASPHALT
В	B.F.F. BIT.	BELOW FINISH FLOOR BITUMINOUS
_	BLDG.	BUILDING
С	CB C.O.	CATCH BASIN CLEAN OUT
	COMP. CONC.	COMPRESSOR CONCRETE
	CMU	CONCRETE MASONRY UNIT
D	C.J. DIA.	CONTROL JOINT DIAMETER
	DIM.	DIMENSION
	DWG. D.I.	DRAWING DUCTILE IRON
Ε	EA. ELEC.	EACH ELECTRIC
	EL. / ELEV.	ELEVATION
	EQ. EXIST. / EX.	
	EXP. E.J.	EXPANSION EXPANSION JOINT
F	EXT. FT.	EXTERIOR FEET
Г	F.F.	FINISH FLOOR
	F.H. FIXT.	FIRE HYDRANT FIXTURE
	FLR. F.A.R.	FLOOR FLOOR/AREA RATIO
G	GA.	GAUGE
	GALV. GL.	GALVANIZED GLASS
Н	HT.	HEIGHT
	H.P. H.M.	HIGH POINT HOLLOW METAL
	HORIZ.	HORIZONTAL
ı	I.D. INT.	INSIDE DIAMETER INTERIOR
J	INV. JT.	INVERT JOINT
L	L.L.	LIVE LOAD
-	L.L.H. L.L.V.	LONG LEG HORIZONTAL LONG LEG VERTICAL
	L.P.	LOW POINT
М	MFR. MH	MANUFACTURER MANHOLE
	MAS.	MASONRY
	M.O. MAX.	MASONRY OPENING MAXIMUM
	MIL. MIN.	MILLIMETER MINIMUM
. .	MTD	MOUNTED
N	NOM. N.I.C.	NOMINAL NOT IN CONTRACT
^	NO.	NUMBER
0	O.C. O.D.	ON CENTER OUTSIDE DIAMETER
	O.H. OE	OVERHEAD OVERHEAD ELECTRIC
_	OTE	OVERHEAD TELEPHONE & ELECTRIC
Р	PTD. PSF	PAINTED POUNDS PER SQUARE FOOT
	PSI PEMB	POUNDS PER SQUARE INCH PRE-ENGINEERED METAL BUILDING
	PREFAB.	PREFABRICATED
R	RAD.	RADIUS
	REV. R.O.W.	REVISED RIGHT OF WAY
	RTU RM.	ROOF TOP UNIT ROOM
0		

S SAN.

S.P.A.

ST. MH

T/C T/GR

T/W

U.N.O.

W/O

U.P.

V VERT.

W w/

U UE

T TV&S

SANITARY

STANDARD

STORM MANHOLE

TOP OF CURB

TOP OF GRADE

TOP OF WALK TO BE REMOVED

TYPICAL

UTILITY POLE

VERTICAL

WITH

WITHOUT

TOP OF PAVEMENT

SITE PLAN APPROVAL

TAPPING VALVE & SLEEVE

UNDERGROUND ELECTRICAL

UNLESS NOTED OTHERWISE

UNDERGROUND TELEPHONE & ELECTRICAL

SCHED./SCH. SCHEDULE

SQ. FT./ S.F. SQUARE FEET

LEGAL DESCRIPTION

PROPERTY TAX ID: K-11-39-252-022 PROPERTY DESCRIPTION PER AMERICAN TITLE COMPANY OF WASHTENAW, ISSUED FOR STEWART TITLE GUARANTY COMPANY, COMMITMENT NO: 116879, WITH AN EFFECTIVE DATE OF APRIL 11, 2025 AT 5:00 Land in the Township of Ypsilanti, County of Washtenaw, Michigan, described as: Lots 19 through 24, inclusive, TRIANGLE PARK SUBDIVISION, a part of French Claim No. 690,

Washtenaw County, Michigan, as recorded in Liber 7 of Plats, Page 26, Washtenaw County Records. Also, the vacated walkway between Lots 19, 20, 21 and 22 of said Subdivision. Also, beginning in the centerline of Chicago Road (now Michigan Avenue) at a point which is South

20°06'00" East 51.20 feet from the Southeast corner of Triangle Park Subdivision, as recorded in Liber 7 of Plats, Page 26, Washtenaw County Records; thence North 20°06'00" West 280.87 feet; thence South 88°40'00" East 491.95 feet to the center of Chicago Road (now Michigan Avenue);

thence South 57°27'00" West 468.95 feet to the PLACE OF BEGINNING, being part of French Claim No. 690, Town 3 South, Range 7 East, Ypsilanti Township, Washtenaw County, Michigan.

PROJECT DESCRIPTION

The proposed use is a modern express exterior auto wash — defined as a conveyorized wash with automated pay terminals, unlimited plans, free vacuums and other complimentary services. The proposed site plan is substantially similar to other operational Zippy Auto Wash sites in the nearby Ann Arbor / Ypsilanti area. The proposed site plan consists of a 4900 square foot building, including a 150 foot automated wash process with high power, heated mechanical drying, 2 automated pay terminals located behind the building, ample stacking spaces located on site, 12 vacuum stations and customer & employee parking, located adjacent to the building. The entrance & exit slabs adjacent to the building shall be heated to prevent freezing; areas beyond the slabs shall be deiced regularly to prevent freezing.

GENERAL NOTES:

1. All site work shall meet all applicable codes, laws and regulations including Michigan Barrier—Free Design Requirements and ADA Accessibility Guidelines (ADAAG).

2. Verify existing conditions on site. Notify architect/engineer of discrepancies prior to proceeding with construction.

3. Provide signs per Michigan Barrier-Free Requirements at handicapped spaces. Van spaces shall have an additional sign, "VAN ACCESSIBLE" per ADAAG requirements. 4. All work in R.O.W. shall conform to MDOT and/or County Standards and

permitting guidelines. 5. All roads leading to the site are designated Class A for all season travel. 6. All work done shall be performed in accordance with the Township's current ordinances, standards and regulations. 7. Existing utility information and locations are per existing records and may

UTILITY NOTES

or may not have been field verified.

The existing utilities shown on the drawings represent the best information available as obtained by field surveys and from existing records. This information does not relieve the contractor of the responsibility to contact Miss Dig or to satisfy himself as to the accuracy of the location shown.

SEWER AND WATER <u>TELEPHONE</u> YCUA 2777 State Road 5500 South Maple Road Ypsilanti, MI 48198 Ann Arbor, Michigan 48103 (734)484 - 4600(734) 996-5351 **ELECTRIC** <u>GAS</u> DTE DTE Gas 8001 Haggerty Road 17150 Allen Rd. Bellleville, MI 48111 Melvindale, MI 48122 (734) 397-4321 (800) 338-0178

For protection of underground utilities, the contractor shall notify the Miss Dig Utility Location Service a minimum of 72 hours prior to excavation.

Know what's below.

Call before you dig.

The improvements covered by these plans shall be done in accordance with the City of Saline's standards and supplemental specifications.

SITE INFORMATION

CURRENT ZONING: RC - Regional Corridor, SITE TYPE C, BUILDING TYPE A.2 SITE AREA: GROSS/NET = 143,072 SF/108,535 SF NET - 3.28 AC./ 2.49 AC. NETEXISTING USE: Car Wash PROPOSED BUILDING USE: Automatic Car Wash PROPOSED BUILDING AREA: 4,900 SF - 1 Story

	REQUIRED	PROPOSED
MIN. LOT AREA	24,000 SF	Net 108,535 SF/2.49 Acres
MIN. LOT WIDTH	150'	493'
LOT COVERAGE		4.5%
IMP AREA COVERAGE	80%	4.5%
MAX. BUILDING HEIGHT	14' Min., 1 story	18', 1 story
MAX. BUILDING HEIGHT	30' max., 2 stories	18', 1 story
FRONT BUILD TO LINE (MICHIGAN AVE)	10'	10'
FRONT BUILD TO LINE (ELLSWORTH RD)	10'	83.5'
REAR YARD SETBACK	10'	178'
RESIDENTIAL USE SETBACK	27'	178'

PARKING & LOADING: Parking Spaces Required: Vehicle Wash: 1 space for each (1) employee. 3-5 employees Total Required Parking Spaces: 5 spaces Parking Spaces Provided: 12 vacuum spaces are provided with 5 employee spaces, Including 1 barrier—free space <u>Loading Spaces:</u> 1 Loading Spaces Provided.

Stacking Spaces: Required: Auto Washes: Entry 8 — Exit 2 Provided: 10+ each

SOILS INFORMATION:

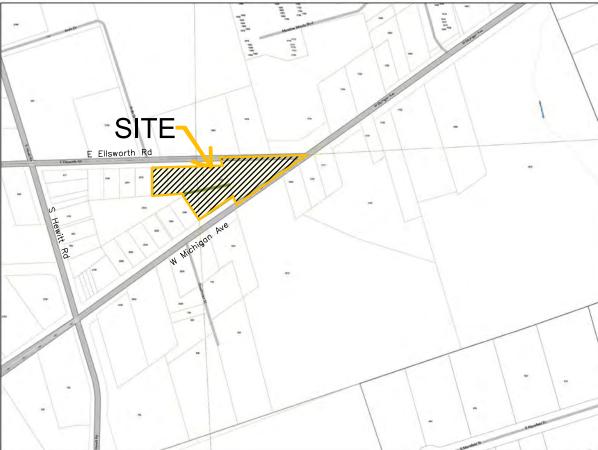
MoC Morley loam, 6 to 12 percent slopes Soil Group C StB St Clair clay loam, 2 to 6 percent slopes Group D

NATURAL FEATURES:

The site is contains an existing car wash facility with paving utilities landscape and detention which shall be removed for the new development. Trees along western property lines shall be maintained to the extent possible for construction.

SANITARY SEWER BASIS OF DESIGN

THE AVERAGE FLOW RATE DURING HOURS OF OPERATION IS 0.025 CFS WITH A PEAK RATE OF 0.065 CFS. ESTIMATED AT 5000 GPD





GENERAL INFORMATION

PROPERTY LOCATION: 1822 W Michigan Ave Ypsilanti, Michigan 48197

<u>DEVELOPER/OWNER:</u> Zippy Real Estate, LLC P.O. Box 550 Saline, Michigan 48176

SITE PLANNER/ENGINEER/CONTRACTOR: Vanston/O'Brien, Inc. 8150 Jackson Road, Ste. A Ann Arbor, Mi 48103

DRAWING INDEX:

	O HIDEN.
C-1 C-2 C-3 C-4 C-5 C-6 C-7 C-8 C-9 C-10	TITLE SHEET EXISTING CONDITIONS PLAN SITE PLAN GRADING PLAN DRAINAGE & SESC PLAN LANDSCAPE PLAN LIGHTING PLAN DETAIL SHEET STORM WATER CALCULATION ADS STORMTECH DETAILS
A-1	FLOOR PLAN & FLEVATIONS

SURVEY (by others)





734-904-3869

(734) 424-0661

ONS FLOOR PLAN & ELEVATIONS SITE & BUILDING RENDERING

BOUNDARY & TOPOLOGICAL



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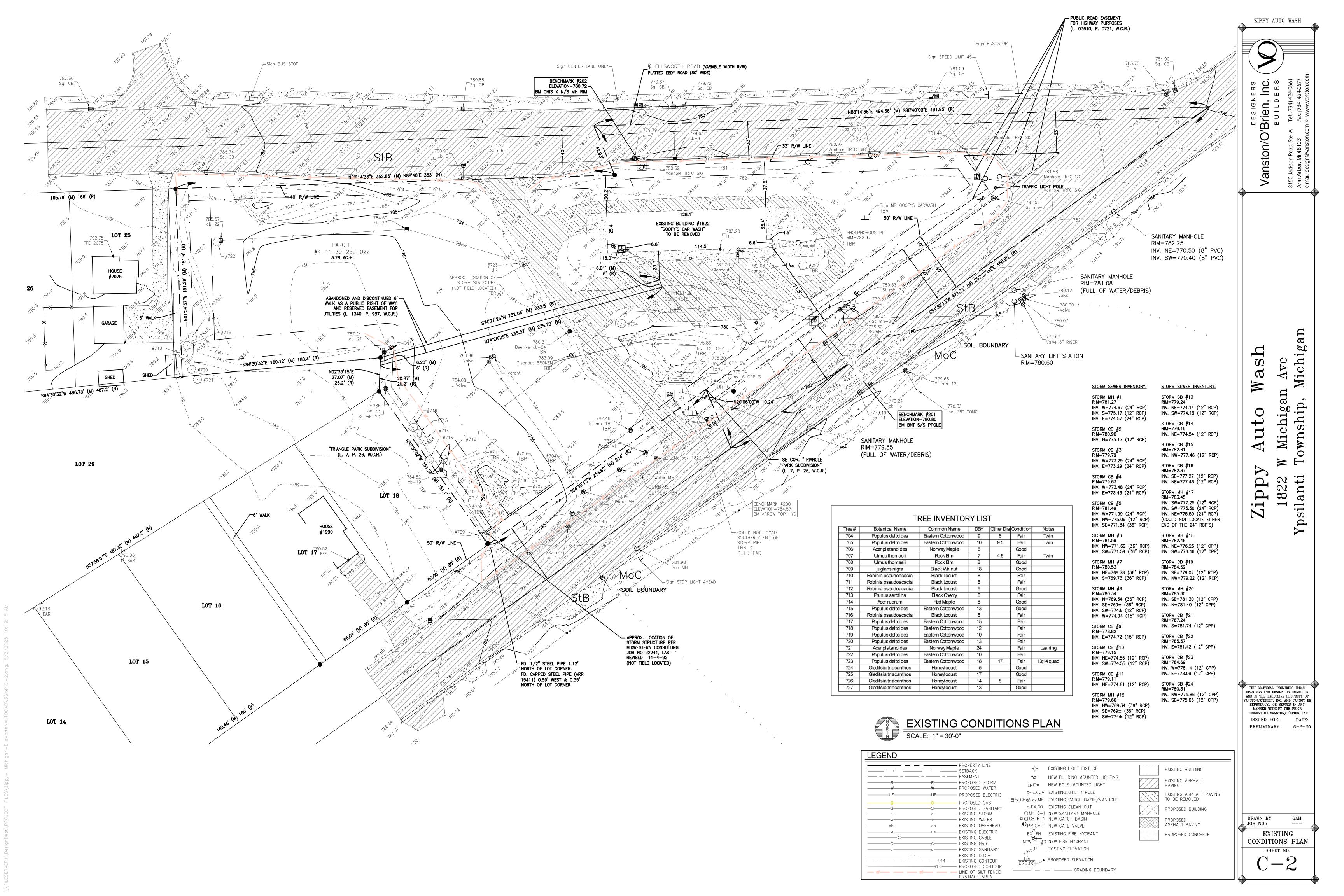
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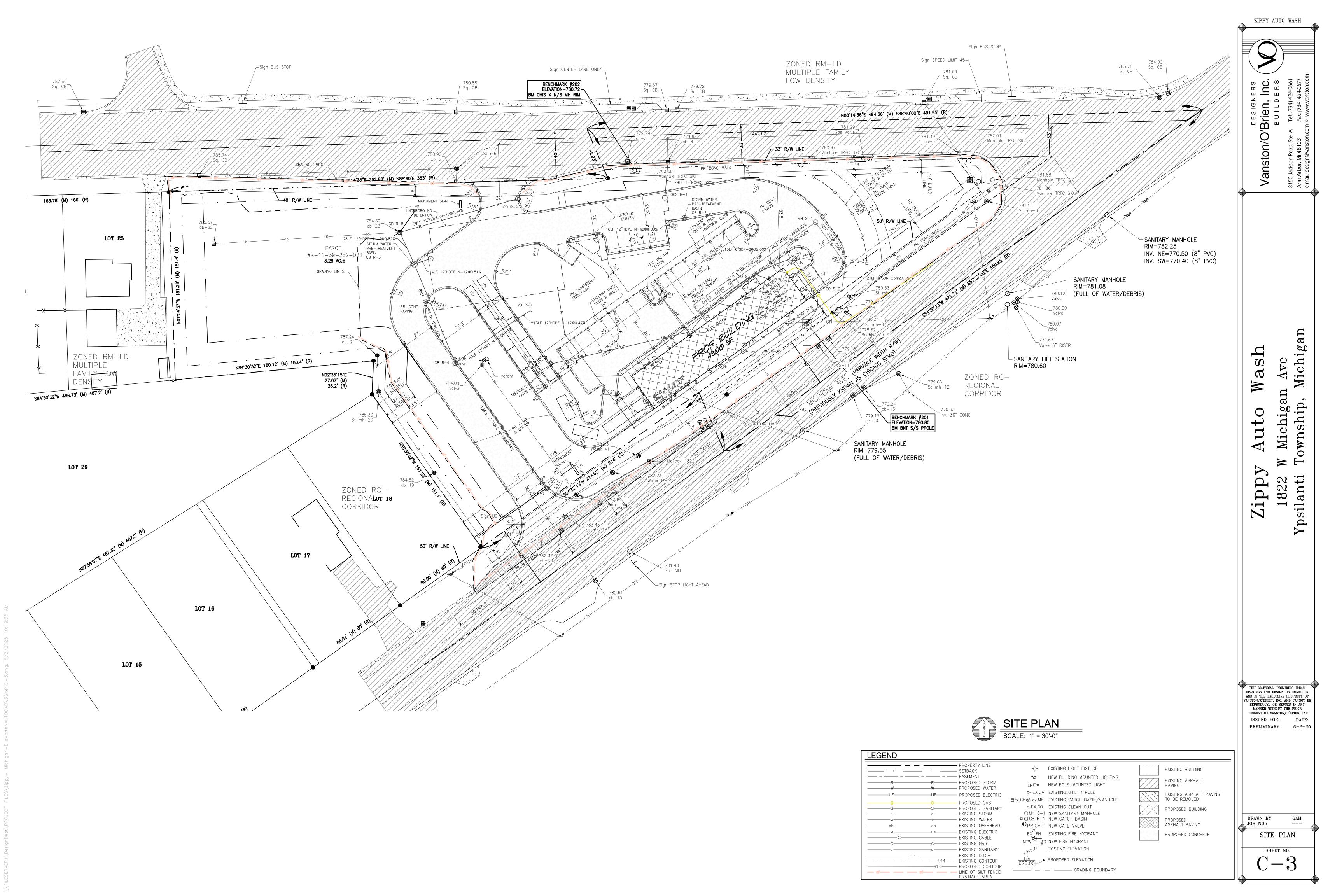
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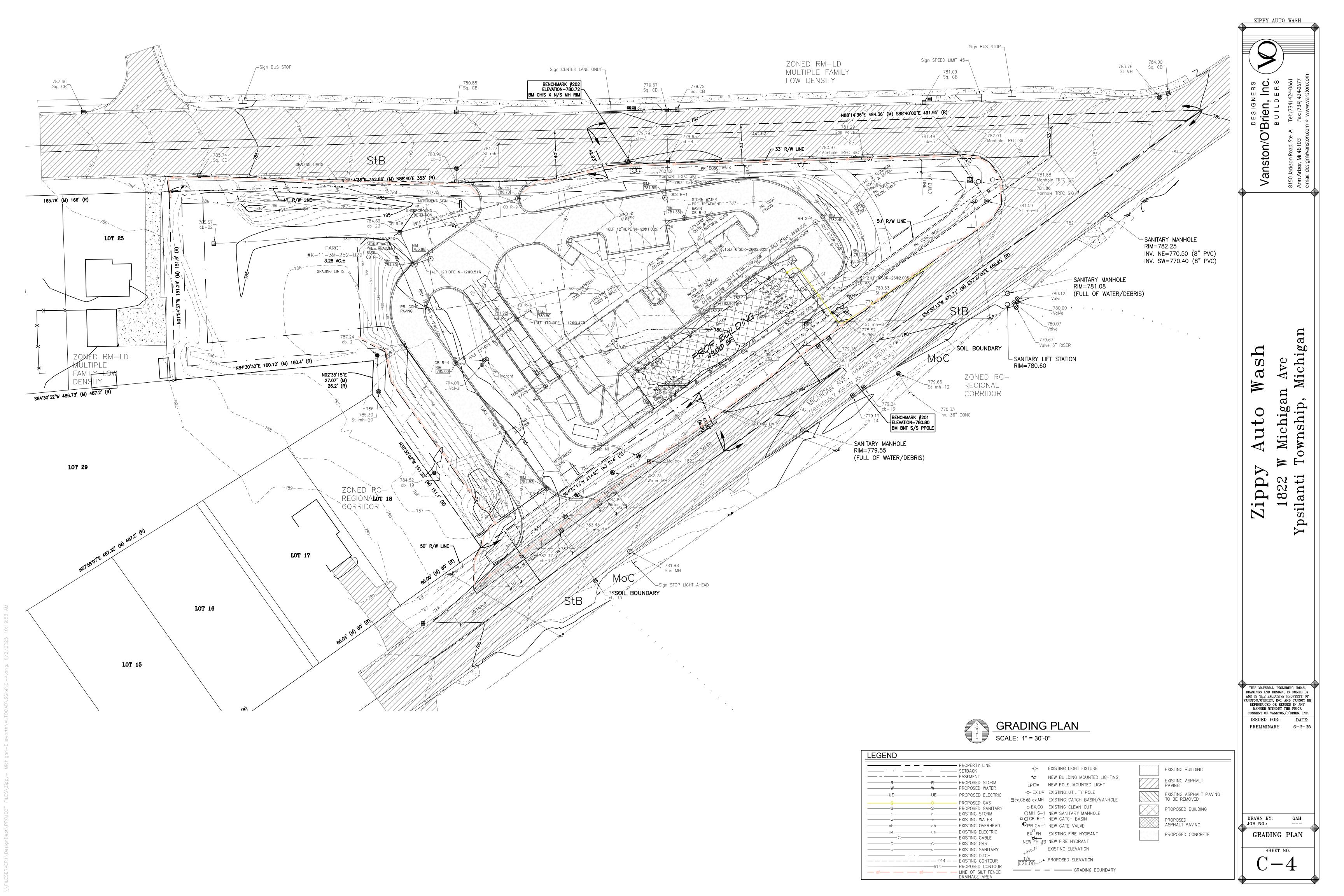
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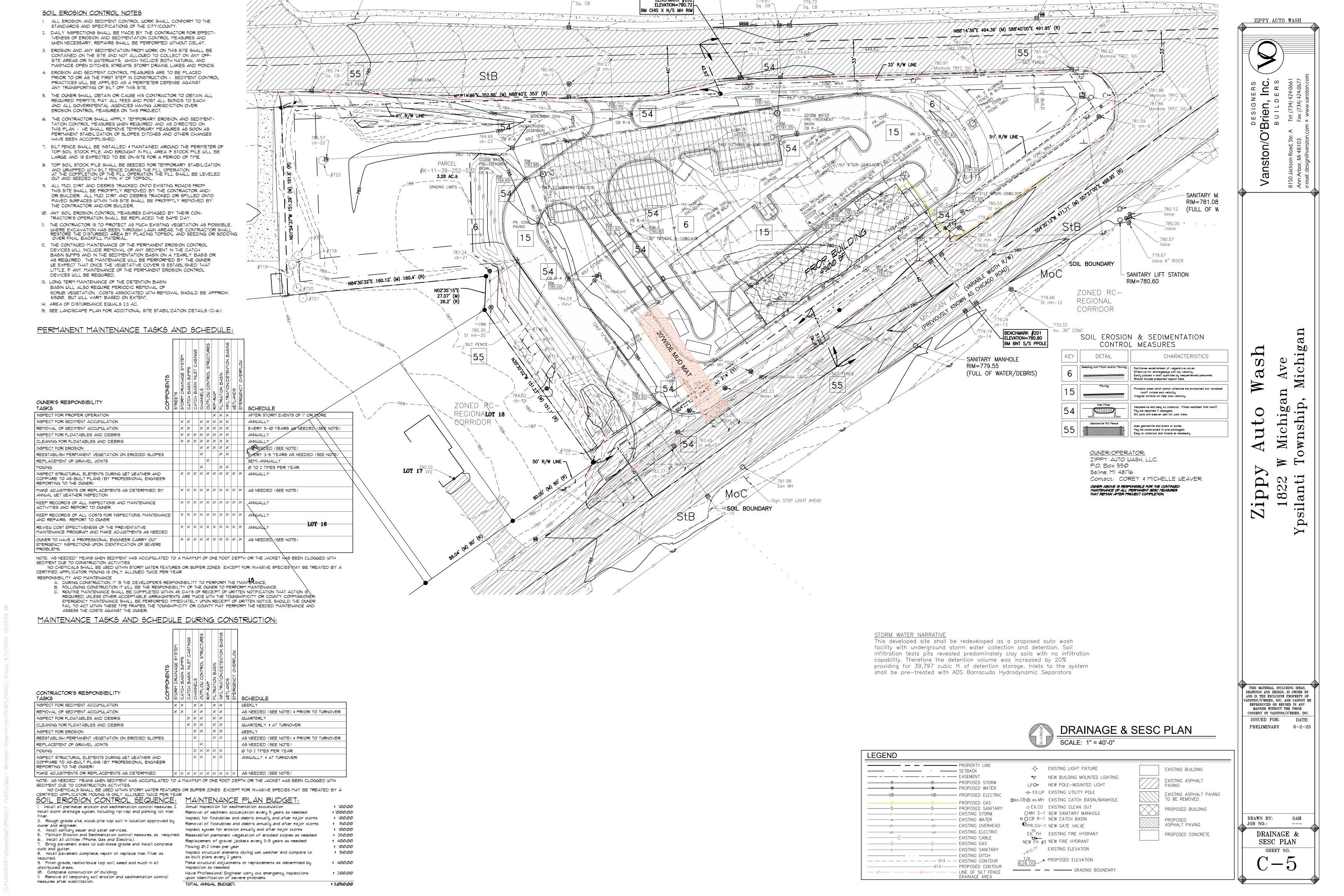
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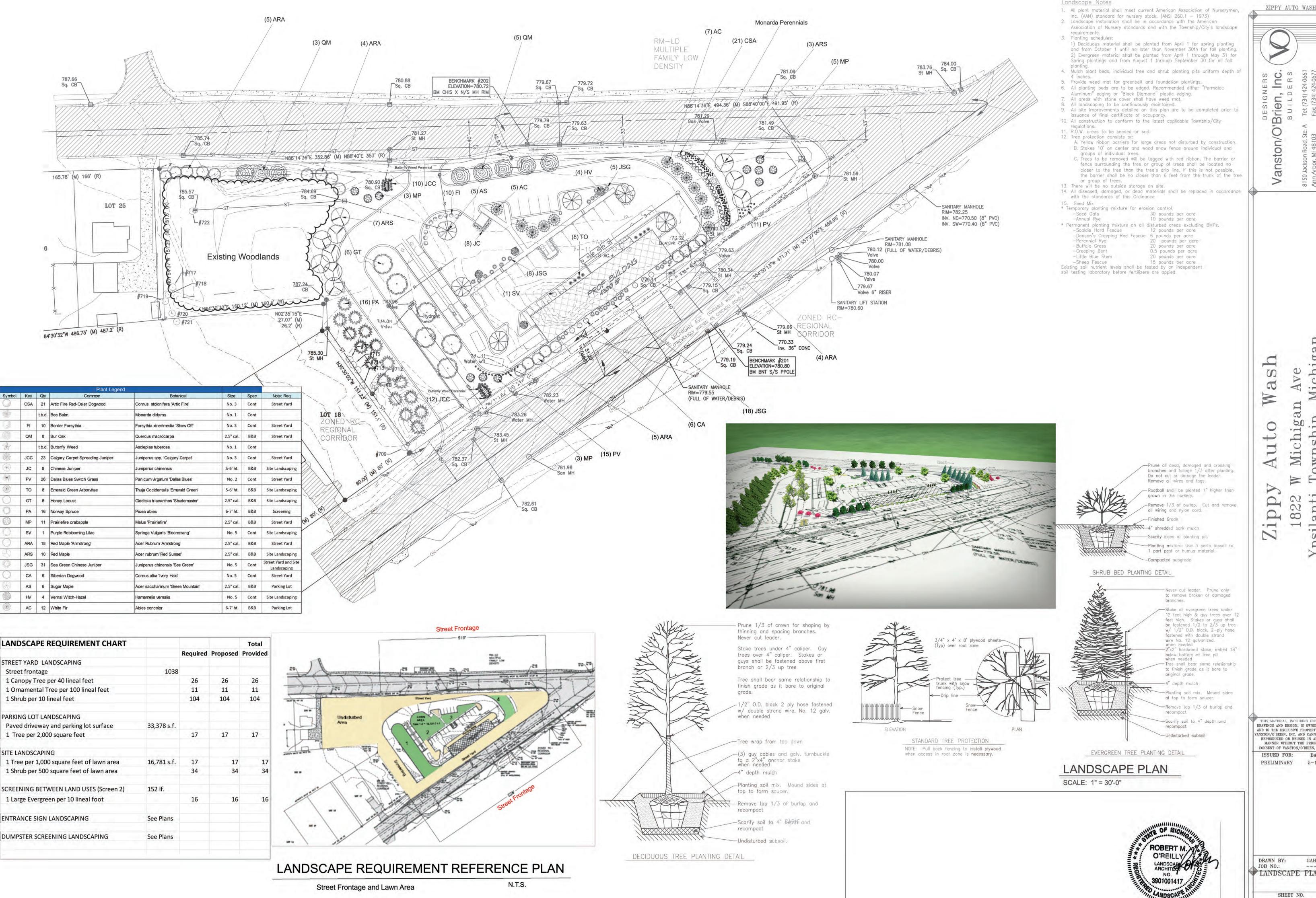
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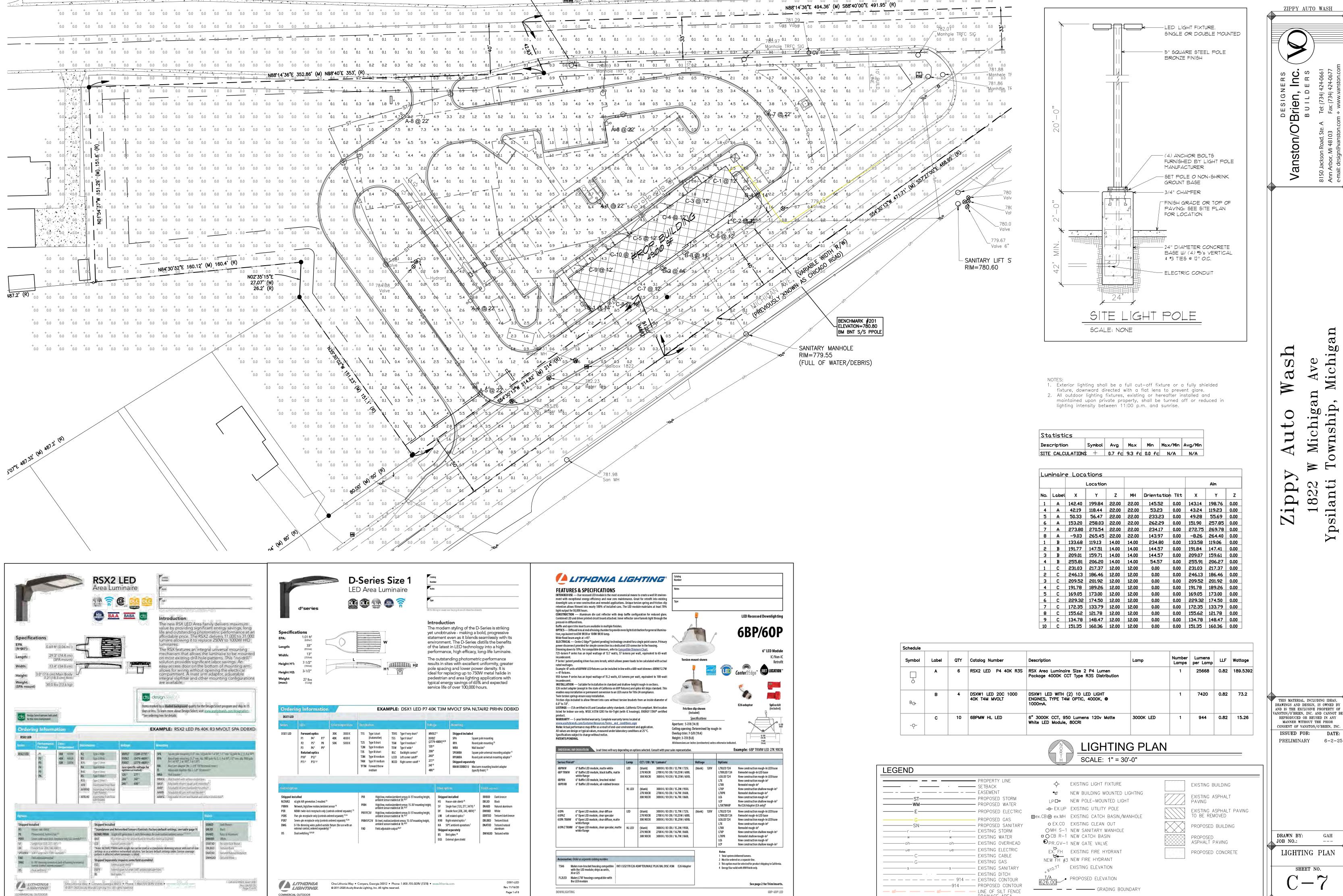
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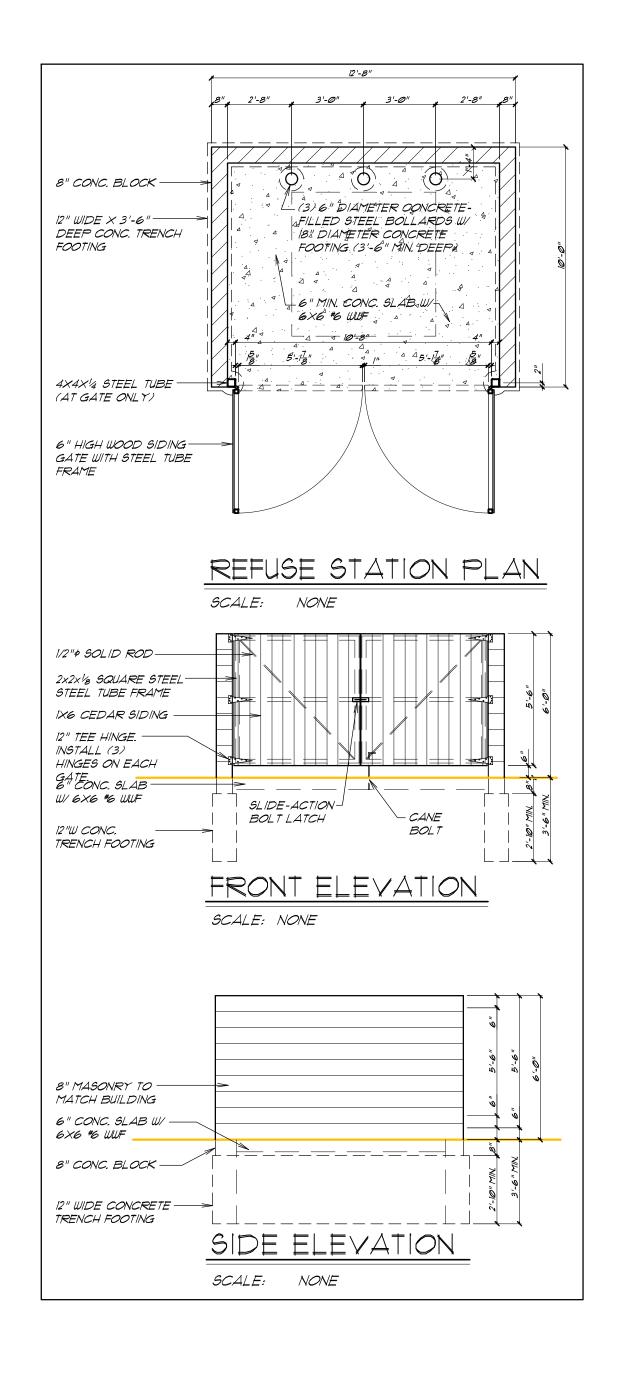
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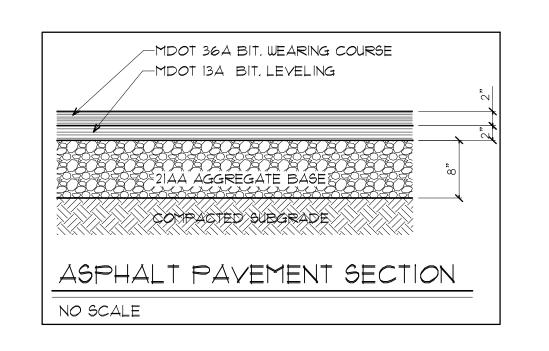
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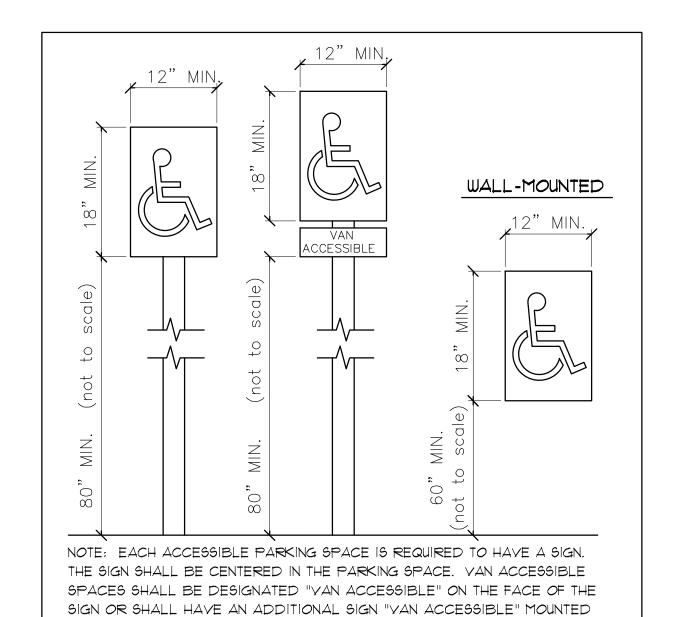
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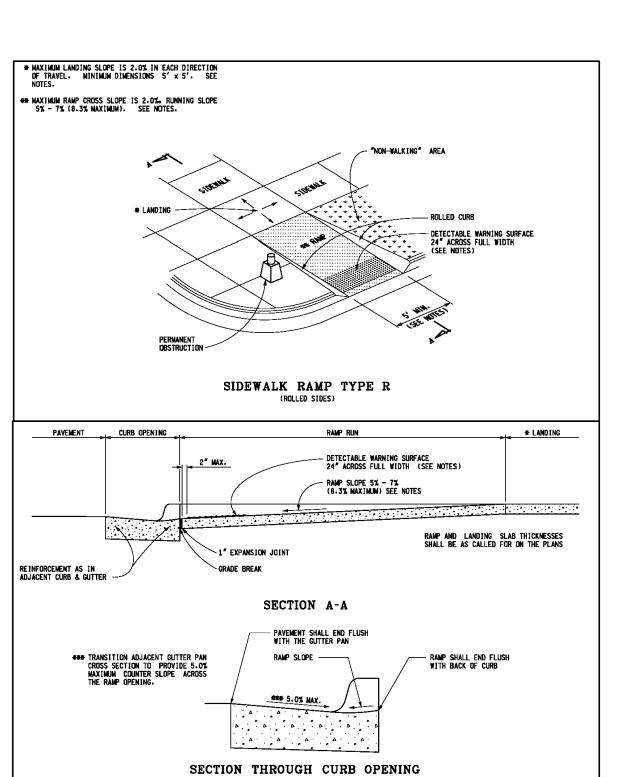
ND		SCALE: 1" = 30'-0"	
ST — WM — E — G — SN — — — — — — — — — — — — — — — — —	PROPERTY LINE SETBACK EASEMENT PROPOSED STORM PROPOSED WATER PROPOSED ELECTRIC PROPOSED SANITARY EXISTING STORM EXISTING OVERHEAD EXISTING ELECTRIC EXISTING CABLE EXISTING GAS EXISTING SANITARY EXISTING GAS EXISTING CABLE EXISTING CABLE EXISTING CONTOUR PROPOSED CONTOUR	EXISTING LIGHT FIXTURE NEW BUILDING MOUNTED LIGHTING LPD NEW POLE—MOUNTED LIGHT OEX.CD EXISTING UTILITY POLE EXISTING CATCH BASIN/MANHOLE OEX.CO EXISTING CLEAN OUT OMH S-1 NEW SANITARY MANHOLE OCB R-1 NEW CATCH BASIN PR.GV-1 NEW GATE VALVE EX. FH EXISTING FIRE HYDRANT NEW FH #3 NEW FIRE HYDRANT EXISTING ELEVATION T/A PROPOSED ELEVATION	EXISTING BUILDING EXISTING ASPHALT PAVING EXISTING ASPHALT PAVING TO BE REMOVED PROPOSED BUILDING PROPOSED ASPHALT PAVING PROPOSED CONCRETE



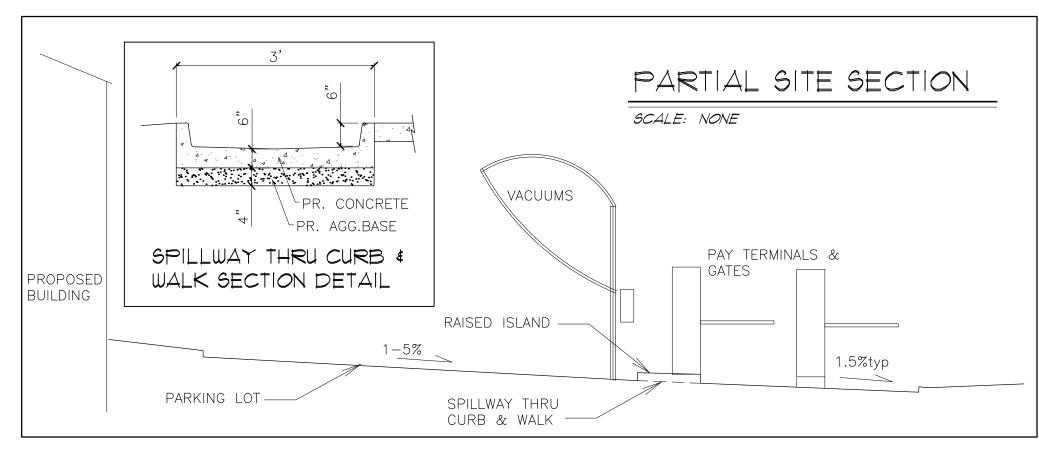


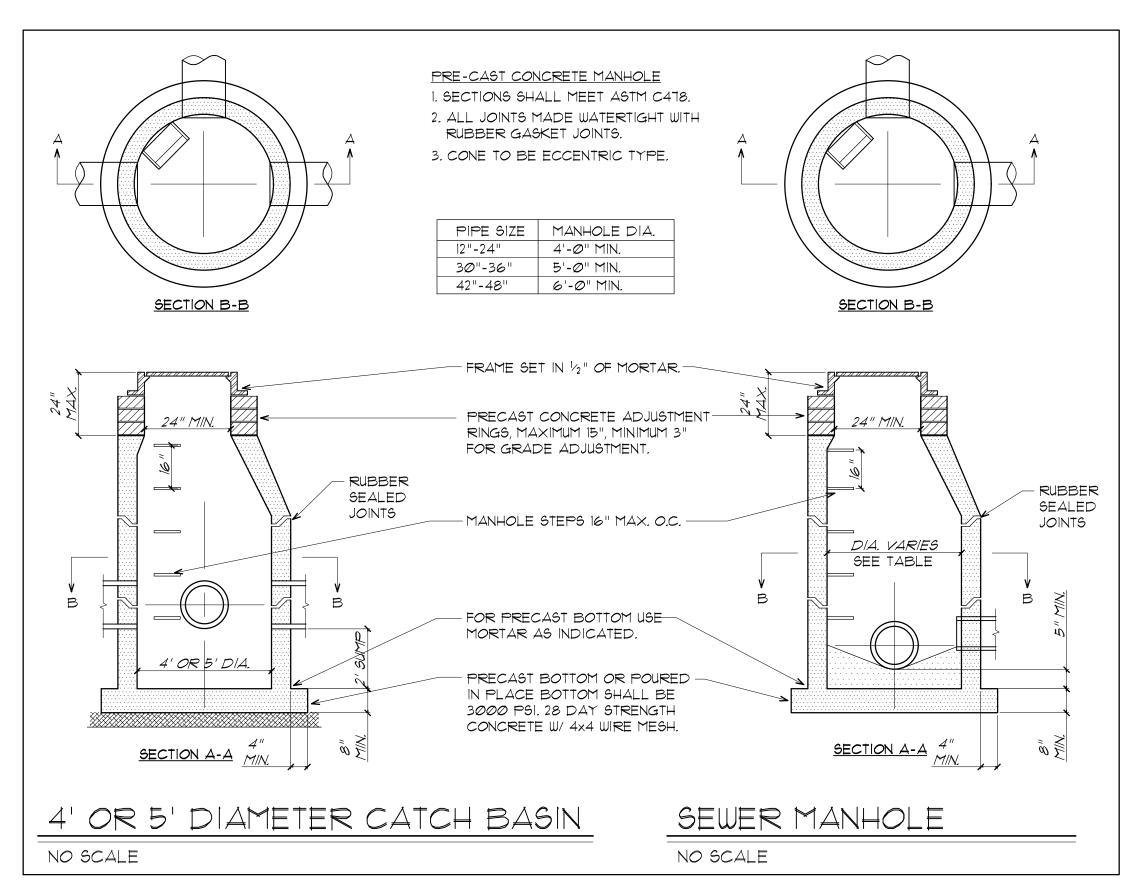


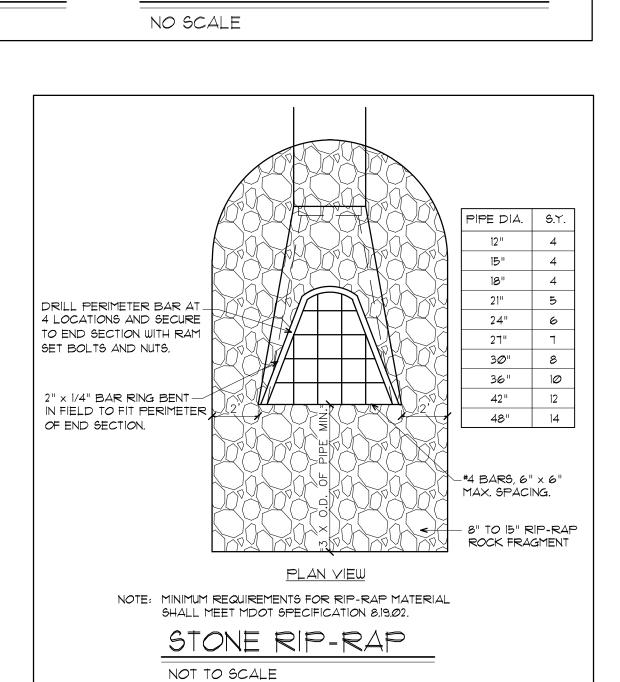
BARRIER-FREE PARKING SIGN

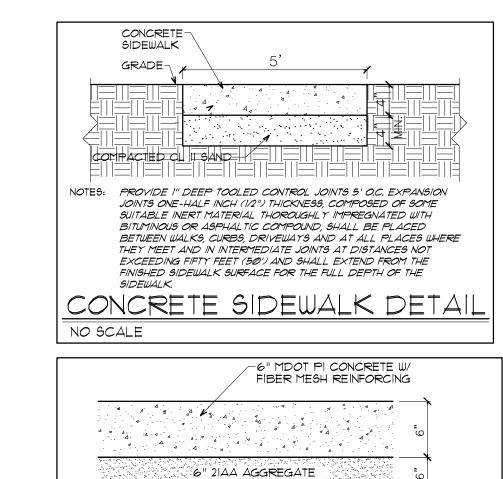


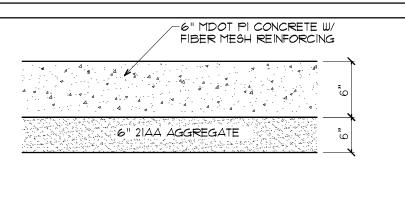
BELOW THE REQUIRED SIGN.



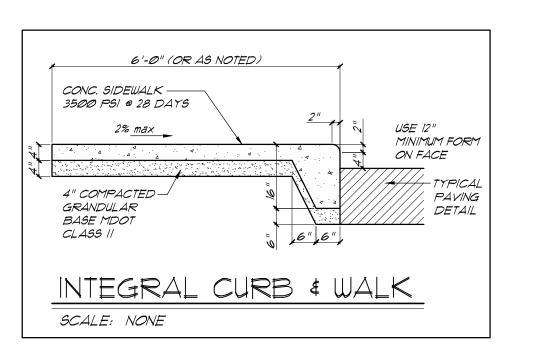


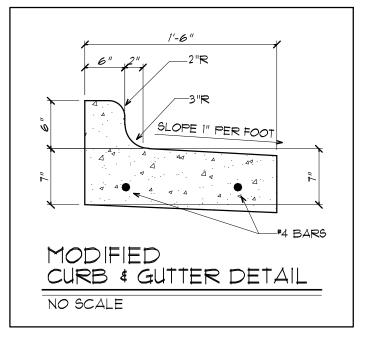


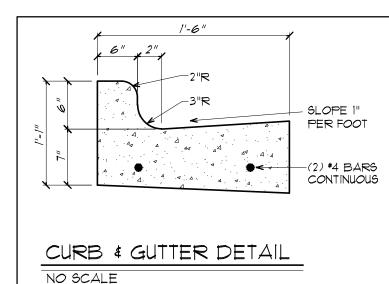


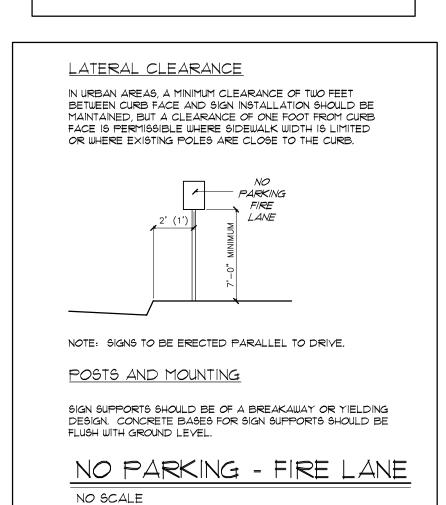


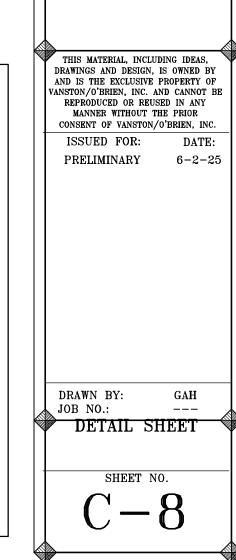
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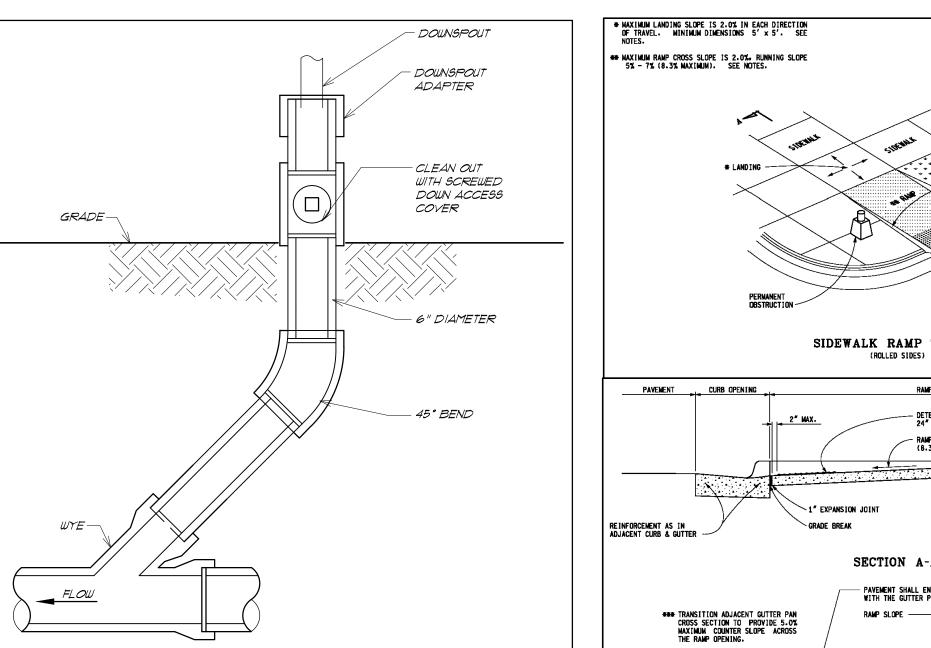






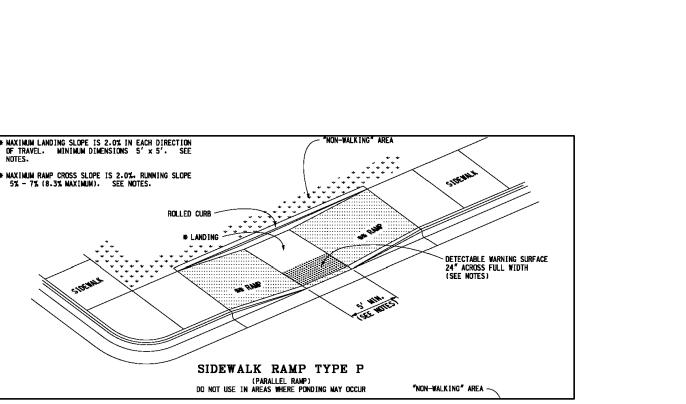


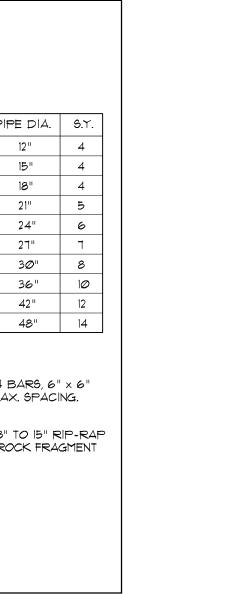




DOWNSPOUT RISER DETAIL

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ZIPPY AUTO WASH

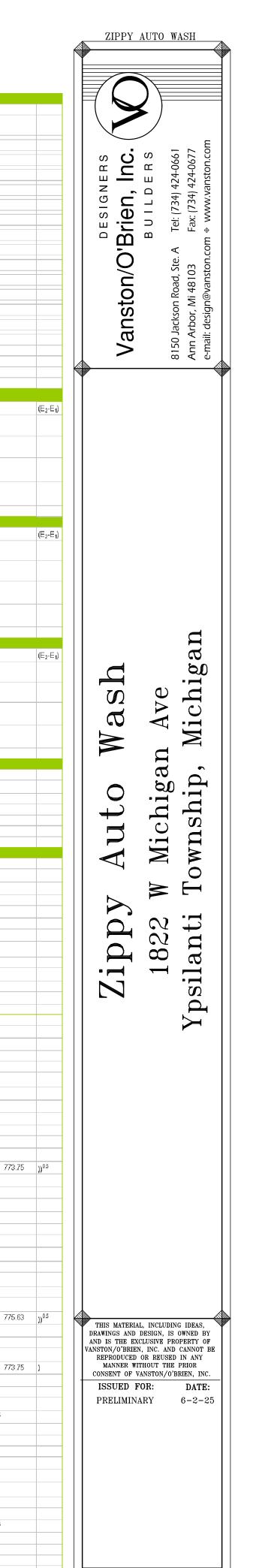
		E	Basin 1: Det	tention Desig	jn			
		Р	Project Name roject Number Completed By		Zippy AutoWash 3551 GAH			
			₩ orking Date Jurisdiction		5/27/2025 Washlenaw County			
Basin 1: Detention Design Worksheet 1 Rational Method Variab Total Site Area = A _{total} =	2.49	unoff acres						
Total Site Area Exluding "Self Crediting" BMPs = A = Runoff Volume W ork Sheets		acres	=	108,535	sf			
Rational Method Variables for First F Cover Type		A rea (ft ²)	Area (ac)	Runoff Coefficient C	C x Area			
Impervious Cover Open Space	St Clair	44,884 50,596	1.03	0.95 0.45	0.98 0.52			
Open Space Total		13,055	0.30 2.49	0.35	0.10 1.61			
Weighted C=	Area x C Area	=	1.61 2.49	=	0.64			
NRCS Variables for bankfull and 100 Cover Type	Soil Type	A rea (ft ²)	Area (ac)	Curve Number	CN x A rea			
Open Space Water Total	M orley	76,943 31,591 108,534	1.77 0.73 2.49	78 71	137.78 51.49 189.27			
Weighted CN=	<u>Area x CN</u> Area	=	189.27 2.49	=	76			
NRCS Variables for bankfull and 100	-		Area (as)	Curve Number	CN x A rea			
Cover Type Impervious Cover Open Space	St Clair/M orley St Clair	Area (ft²) 44,884 50,596	Area (ac) 1.03 1.16	98 80	100.98 92 .92			
Open Space Total		13,055 63,651	0.30 2.49	74	22.18 216.08			
Weighted CN=	<u>Area x CN</u> Area	=	216.08 2.49	=	87			
Worksheet 2 First Flush Volume The first inch of rain in a 24-hour storm.								
V _f =	3,630 3,630	X X	A 2.49	X	C 0.64			
= W orksheet 3 Pre-Development Bankf	5,831	cubic feet			2.0 1			
Volume for the 2 year / 24 hour storm The pre-development land cover will be		P =	2.35	in				
CN _{pre} =	76 1000	_	10	=	1000	-	10	
\$ =	ON pre	in			76		10	
Q =	(P-028) ² (P+0.88)	= (2.35	- +	0.2	*	3.158 3.158)2
Q =	0.606	in						
Vpre bf= = =	Q 3,212	x cubic feet	A 12	=	0.606	Х	63,651 12	
Worksheet 4 and 5 Post-Developmen Pervious Cover Post-	t Bankfull Runoff C	alculations						
Volume for the 2 year / 24 hour storm	79	P =		in Ablae Workshaat				
CNpervious = S =	1000		10 10	=	1000	-	10	
S =	on pervious 2,658	in			79			
Q =	(P-0.2S) ² (P+0.8S)	= (2.35 2.35	-+	0.2 0.8	*	2.658 2.658)2
Q = Pervious Cover Area, A _{penious} =	0.739 63,651	in sf	From NRCS Var	iable worksheet				
V pervious bf		Х	A	=	0.739	х	63,651	
=	3,918	cubic feet	12				12	
Impervous Cover Post- Volume for the 2 year / 24 hour storm		P =	2.35	in				
CNimpervious ⁼	98	Impervious dover (l ariables Worksheet				
S = S =	1000 on impervious 0.204	in -	10	=	1000	-	10	
Q =	(P-0.28) ²	= (-	0.2	*	0.204)2
Q =	(P+0.88) 2.122	in (2.35	+	0.8	*	0.204)
Impervious Cover Area, A _{impervious} =	44,884	sf	From NRCS Var	iable worksheet	0.400		4400 -	
Vimpervious bf ⁼ = =		x cubic feet	A 12	=	2.122	Х	44,884 12	
Worksheets 6 and 7 Post-Developme Pervious Cover Post-	nt 100 Year Storm F	Run off Volume Cak	culations					
100 Year Storm Event	79	P =		in ables Worksheet				
CNpervious S =	1000	Pervious cover CN	10	adies vworksneet =	1000	-	10	
S =	ON pervious 2,658	in			79			
Q100 per ⁼	(P-0.2S) ² (P+0.8S)	= (5.11 5.11	-+	0.2 0.8	*	2.658 2.658)2
Q100 per ** Pervious Cover Area A	2.897 63,651	in sf	From NRCS Var	iable worksheet				
Pervious Cover Area, A _{penious} = Vpervious 100 ⁼	Q ₁₀₀ per	х	Α	=	2.897	х	63,651	
=		cubic feet	12				12	
Impervous Cover Post-		P =	5.11	in				
Impervous Cover Post- 100 Year Storm Event			 from NRCS Varia	l ables Worksheet				
	98	Pervious dover CN			1			
100 Year Storm Event CNimpervious 8 =	1000 CN impervious	-	10	=	1000 98	-	10	
100 Year Storm Event CNimpervious	1000			=		*	0.204)2
100 Year Storm Event CNimpervious S =	1000 ^{CN} impervious 0,204	in			98)2
100 Year Storm Event CNimpervious 8 = Q 100 imp	1000 CN _{Imperviols} 0.204 (P-0.28) ² (P+0.88)	- in = (in	5.11	- +	0.2	π	0.204)2)
100 Year Storm Event CNimpervious S = S = Q 100 imp Q 100 imp	1000 CN Impervious 0.204 (P-0.28) ² (P+0.88) 4.873 44,884	- in = (in	5.11 5.11	- +	0.2	π	0.204)2

Wadalan to D. C. T.									
Worksheet 8 Determine Time of Cond Flow Type		Change in	_{chrs}) Length (L)	Slope % (S)	S ^{0,5}	V=K*S ^{0.5}	Tc=L/(V*3600)		
Sheet Flow (no more than 300)	0.48	Elevation (ft)	200	1.00%	1.00	0.48	0.12		
Walerway Waterway	1.20 1.20	2	250	0.80%	0.89	1.07	0.06		
					Total Time of Concer	ntration (Tc) =	0.18	hr	
Worksheet 9 Runoff Summary & Ons	ite Infiltration Requ	irement							
Runoff Summary First Flush Volume (Vff) =				5,831	cubic feet				
Pre-Development Bankfull Runoff Volume	e (V _{pre bf}) =			3,212	cubic feet				
Pervious Cover Post-Development Bank				3,918 7,936	cubic feet				
Impervious Cover Post-Development Ba Total Post-Development Bankfull Vol	·	ious lif) =		11,854	cubic feet				
Pervious Cover Post-Development 100-	vear Volume V _{enion} s	100) =		15,364	cubic feet				
Impervious Cover Post-Development 10	0-year Volume (V _{impe}			18,227	cubic feet				
Total Post-Development 100-year Vol	ume (V ₁₀₀) =			33,591	cubic feet				
Onsite Infiltration Requirement Subtract the pre-development bankfull fro	m the post-developm	ent bankfull volumes	3.						
Total Post-Development Bankfull Volume Total Pre-Development Bankfull Runof V				11,854 3,212	cubic feet				
Bankfull Volume Difference	olume (v _{pre bf)} –			8,642	cubic feet				
Compare the Bankfull Volume Difference	with the First Flush V	olume. The GREA	TER of the two is th	ne on-site infiltration.					
Onsite Infiltration Requirement (V _{inf})	=	8,642	cubic feet						
Worksheet 10 Detention / Retention i	Requirement								
<u>Detention</u> Peak of Unit Hydrograph, Q₀ =	238.6	±	(Tc) ^{-0,82}	=	238.6	*	0.18	-0.82	
Peak of Onlit Hydrograph, d _b = C _b =	971.57	cfs/in-mi ²	(IO)				5.10		
Total Site Area (ac) extuding "Self-Credit	ing" BMPs, A=		2.49	ac					
Q ₁₀₀ =	Q _{100 per}	+	Q _{100 imp}	=	2.897	+	4.873		
^Q 100 =	7.770	in							
Peak Flow, PF =	Qp*Q100*A	=	971.57	*	7.770	*	2.49		
Peak Flow, PF =	640 29.39	cfs			640				
Δ =	PF	-	0.15	*	А				
Δ = Δ =	29.39 29.01	- cfs	0.15	*	2.49				
V det	Δ	*	V 100	=	29.01	*	33,591		
V det =	PF 33,164	cubic feet	10.0	**Not inlouding infiltr	29.39 ration reduction credit of	r nenaltv			
	30,104	Cupic Icea		rvot ii ne danig ii iiili	anorreaddioreseance	, penalty			
Retention V net =	2	*	V 100	=	2	*	33,591		
V' = ret	67, 182	cubic feet							
Worksheet 11 Determine Applicable in Proposed BMP ^a		d Volume Credits							
vpv sou BIYII	A rea (ft ²)	Storage Vo	lume ⁸ (ft³)	Avg. Design	Infiltration Volume	Total Volume			
ope ood bittii	A rea (ft²)	Storage Vo	lume ^B (ft³)		Infiltration Volume During Storm ^C (ft ³)				
•		Surface	Soil	Infiltration Rate (in/hr)	During Storm ^C (ft ³)	Reduction ⁰ (ft ³)			
Pervious Pavt. w/Infiltration Bed Infiltration Basin	0	Surface 0 0	Soil 0	Infiltration Rate (in/hr)	During Storm ^C (ft ³) 0 0	Reduction ⁰ (ft ³) 0			
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench	0 0 0 0	Surface 0 0 0 0	Soil 0 0 0	0.00 0.00 0.00 0.00 0.00	Ouring Storm ^C (ft³)	0 0 0 0			
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens	0 0 0 0 0	Surface 0 0 0 0 0	Soil 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0			
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale	0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 0 0	Soil 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0			
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip	0 0 0 0 0	Surface 0 0 0 0 0 0 0	Soil 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0			
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip	0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil 0 0 0 0 0 0 0 0 0 0 0 0 tuction Credit by P	Infiltration Rate	O (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0			
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip	0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil 0 0 0 0 0 0 0 0 0 0 0 0 tuction Credit by P	Infiltration Rate	O (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	*Requirement pr	rovided by Basin	12
Pervious Pavt, w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof	0 0 0 0 0 0 0 0	Surface	Soil 0 0 0 0 0 0 0 0 0 0 0 0 tuction Credit by P	Infiltration Rate	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	*Requirement pr	rovided by Basin	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a Biotechnical Storage volume as defined in individual	0 0 0 0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 Total Rec	Soil 0 0 0 0 0 0 0 0 0 0 tuction Credit by P	Infiltration Rate (in/hr) 000 000 000 000 000 000 000 000 000	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Bæir	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a Biotechnical Storage volume as defined in individual	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 acchstructural BMP	Surface 0 0 0 0 0 0 0 0 0 Total Rec	Soil 0 0 0 0 0 0 0 0 0 0 0 suction Credit by P Runoff Vol	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Basir	12
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infiltration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section M for B Storage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 seach structural BMP BMP write-ups filtration rate over 6 ho	Surface 0 0 0 0 0 0 0 0 0 Total Reconstruction with and the infiltration with a surface of the	Soil O O O O O O O O O O O O Cuction Credit by P Runoff Vol BIMP area: infiltra	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Basin	12
Pervious Pavt, w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a stronger volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inven Existing Natural Resources	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 seach structural BMP BMP write-ups nilitration rate over 6 hour of storage volume tory Mapped (Y, N, N/A)	Surface 0 0 0 0 0 0 0 0 0 0 Total Recomplete by the and the infiltration versions.	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt, w/Infitration Bed Infitration Basin Subsurface Infiltration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a stronger volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventicating Natural Resources Waterbodies Floodplains	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec type Total A rea (ac) 0.00 0.00	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt, w/Infiltration Bed Infiltration Besin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventional Edition Strip Natural Resources Waterbodies Floodplains Riparian Areas	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 Total Recomplete by the and the infiltration volume.	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Basir	12
Pervious Pavt, w/Infiltration Bed Infiltration Besin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inven Existing Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec type Total A rea (ac) 0.00 0.00	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt, w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inven Existing Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25%	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec type Total A rea (ac) 0.00 0.00 0.00 0.00	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Fitter Strip Green Roof A Complete checklist from Section VI for a Storage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented String Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habtat Areas	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Basir	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a stronge volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented String Natural Resources Walerbodies Floodplains Riparian Areas Wetands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, over 25%	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a Storage volume as defined in individual CApproximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented String Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate	Ouring Storm ^C (ft ³) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		covided by Basin	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section M for a Storage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventisting Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Minimum Onsite Infiltration requirements, Morksheet 13 Summary Minimum Onsite Infiltration requirements, Morksheet 13 Summary Morksheet 13 Summary Minimum Onsite Infiltration requirements, Morksheet 13 Summary Minimum Onsite Infiltration requirements,	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 000 000 000 000 000 000 000 000 000	During Storm ^C (ft ²) 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		covided by Basin	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for section Roof Storage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventional Resources Waterbodies Floodplains Riparian Areas Wellands Woodlands Natural Drainage Area Steep Slopes, 35%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Crisite Infiltration requirements, Designed/Provided Infiltration Volume = Site Credit Infiltration Volume in Basin =	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 000 000 000 000 000 000 000 000 000	During Storm ^C (ft ²) 0 0 0 0 0 0 0 0 0 0 0 0 8MPs (ft ²) = inement (V _{int}) = me Credit (ft ²) =	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		covided by Basin	12
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventisting Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 45%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Onsite Infitration requirements, Designed/Provided Infitration Provided Minimum Required Initration Provided Minimum Required Initration Provided	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ovided by Basir	12
Pervious Pavt, w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inventional Existing Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Onsite Infiltration Volume = Site Credit Infiltration Volume in Basin = Minimum Required Infiltration Provided Total Calculated Defention Volume, Valet =	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 Total Area (ac) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	Soil O O O O O O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		covided by Basir	12
Pervious Pavt, w/Infitration Bed Infitration Basin Subsurface Infiltration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for Postorage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invention By Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented to Strip Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Sleep Slopes, 15%-25% Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Onsite Infitration requirements, Designed/Provided Infitration requirements, Designed/Provided Infitration Provided Total Calculated Detention Volume (Volume Volume Volume Required Detention Volume (Voleter Net Pervision Volume (Volume Net Pervision Volume Net Pervision Volume (Volume Net Pervision Volume Net Pervision Volume (Volume Net Pervision Volume Net Pervision Volu	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec 1 Total A rea (ac) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		covided by Basin	12
Pervious Pavt, w/Infitration Bed Infitration Basin Subsurface Infitration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a strong volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented to the substraint Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Onsite Infitration requirements, Designed/Provided Infitration Provided Total Calculated Detention Volume, V _{det} = Net Required Infitration NoT provided (100 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration NoT provided (110 Net % Penalty (20% x % Redued infitration Net penalty (20% x % Redued infit	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec 1 Total A rea (ac) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rowided by Basin	12
Pervious Pavt, w/Infitration Bed Infitration Basin Subsurface Infiltration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for Postorage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented String Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 45%-25% Steep Slopes, 45%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Onsite Infiltration requirements, Designed/Provided Infiltration Volume = Site Credit Infiltration Volume in Basin = % Minimum Required Initration Provided Total Calculated Detention Volume (V _{det} Detention Volume Increase for site where % Required Infiltration NOT provided (100	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec 1 Total A rea (ac) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt. w/Infitration Bed Infitration Basin Subsurface Infiltration Bed Infitration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section M for a Storage volume as defined in individual Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Invented String Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 35%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Minimum Onsite Infiltration requirements, Designed/Provided Infiltration Volume = Site Credit Infiltration Volume in Basin = % Minimum Required Initration Provided Total Calculated Detention Volume, V _{det} = Net Required Detention Volume (V _{det} and Required Infiltration Volume) Required Detention Volume (V _{det} and Required Detention Volume) Reflection Volume Increase for site where She Required Infiltration Required Infiltration Volume, V _{det} and Required Detention Volume (V _{det} and Required Detention Volume) Reflection Volume Increase for site where She Required Detention Volume (V _{det} and Required Detention Volume) Reflection Volume Increase for site where She Required Detention Volume (V _{det} and Required Detention Volume) Reflection Volume Increase for site where She Required Detention Volume Volume, Net She Required Detention Volume She Regulated Infiltration Regulated Detention Volume She Regulated R	O O O O O O O O O O O O O O O O O O O	Surface	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basin	12
Pervious Pavt. w/Infiltration Bed Infiltration Basin Subsurface Infiltration Bed Infiltration Trench Bioretention systems Rain Gardens Dry Well Bioswale Vegetated Filter Strip Green Roof A Complete checklist from Section VI for a B Storage volume as defined in individual C Approximated as the average design in Total Volume Reduction Credit is the su Worksheet 12 Natural Features Inven Existing Natural Resources Waterbodies Floodplains Riparian Areas Wetlands Woodlands Natural Drainage Area Steep Slopes, 15%-25% Steep Slopes, over 25% Special Habitat Areas Other Total Existing Worksheet 13 Summary Stormwater Management Summary Minimum Constel Infiltration requirements, Designed/Provided Infiltration Volume = Site Credit Infiltration Incomposition Steep Slopes and Infiltration Provided Total Calculated Detention Volume (Videt and Required Detention Volume) Required Infiltration NOT provided (100 Net % Penalty (20% x % Redued infiltration Total Required Detention Volume, Incompleted Infiltration Volume, Inco	O O O O O O O O O O O O O O O O O O O	Surface 0 0 0 0 0 0 0 0 0 0 Total Rec 1 Total A rea (ac) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Soil O O O O O O O O O O O O O	Infiltration Rate (in/hr) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	During Storm ^C (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reduction ⁰ (ft³) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		rovided by Basir	12

Project:	Zippy Auto Wa	ash	_	
Chamber Model -		MC-4500		
Units -		Imperial		StormTech /
Number of Chamber	S -	251		Otomine on /
Number of End Caps	3 -	18		
Voids in the stone (p	orosity) -	30	%	
Base of Stone Eleva	tion -	773.75	ft	
Amount of Stone Ab	ove Chambers -	12	in	
Amount of Stone Be	low Chambers -	9	in	
Area of system -		10245	sf M	lin. Area - 9787 sf min. area

Area of	system -	I	10245	sf Min. Area -	9787 sf min. a	rea		
	ech MC-4500							
Height of System	Incremental Single Chamber	Incremental Single End Cap	Incremental Chambers	Incremental End Cap	Incremental Stone	Incremental Ch, EC and Stone	Cumulative System	Elevation
(inches)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(feet)
81 80	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	39957.59 39701.47	780.50 780.42
79	0.00	0.00	0.00	0.00	256.13	256.13	39445.34	780.33
78 77	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	39189.22 38933.09	780.25 780.17
76	0.00	0.00	0.00	0.00	256.13	256.13	38676.97	780.08
75 74	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	38420.84 38164.72	780.00 779.92
73	0.00	0.00	0.00	0.00	256.13 256.13	256.13	37908.59	779.83
72	0.00	0.00	0.00	0.00	258.13	256.13	37652.47	779.75
71 70	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	37396.34 37140.22	779.67 779.58
69	0.04	0.01	10.28	0.23	252.97	263.49	36884.09	779.50
68 67	0.12 0.16	0.03 0.05	29.14 41.35	0.61 0.93	247.20 243.44	276.95 285.72	36620.61 36343.66	779.42 779.33
66	0.21	0.07	52.39	1.19	240.05	293.63	36057.94	779.25
65 64	0.27 0.45	0. 08 0.11	67.35 113.65	1.50 1.90	235.47 221.46	304.32 337.01	35764.31 35459.99	779.17 779.08
63	0.45	0.11	166.98	2.38	205.32	374.68	35122.98	779.00 779.00
82 81	0.80	0.16	200.55	2.90	195.09	398.54 410.08	34748.30	778.92
61 60	0.91 1.00	0.19 0.22	227.94 251.73	3.40 3.93	186.72 179.43	418.06 435.09	34349.76 33931.70	778.83 778.75
59	1.09	0.25	272.92	4.44	172.92	450.28	33496.61	778.67
58 57	1.16 1.23	0.28 0.30	292.03 309.74	4.96 5.43	167.03 161.57	464.02 476.74	33046.33 32582.31	778.58 778.50
56	1.30	0.33	326.22	5.90	156.49	488.61	32105.57	778.42
55 54	1.36 1.42	0.35 0.38	341.62 356.10	6.38 6.91	151.73 147.22	499.72 510.23	31616.96 31117.24	778.33 778.25
54 53	1.47	0.41	369.81	7.37	147.22	520.14	30607.01	776.25
52 54	1.53	0.44	382.81	7.94	138.90	529.65	30086.87	778.08
51 50	1.57 1.62	0.47 0. 5 0	395.20 406.97	8.44 8.91	135.03 131.36	538.67 547.24	29557.22 29018.55	778.00 777.92
49	1.67	0.52	418.22	9.37	127.85	555.44	28471.30	777.83
48 47	1.71 1.75	0. 54 0. 5 7	428.99 439.27	9.80 10.20	124.49 121.28	563.28 570.76	27915.86 27352.59	777.75 777.67
46	1.79	0.59	449.11	10.59	118.21	577.92	26781.83	777.58
45 44	1.83 1.86	0.61 0.63	458.63 467.72	10.98 11.38	115.24 112.39	584.85 591.50	26203.91 25619.06	777.50 777.42
43	1.90	0.64	407.72 476.48	11.58	109.71	597.76	25027.56	777.33
42	1.93	0.68	484.89	12.19	107.00	604.08	24429.80	777.25
41 40	1.96 2.00	0.70 0.72	492.98 500.77	12.60 13.00	104.45 101.99	610.03 615.77	23825.72 23215.69	777.17 777.08
39	2.03	0.74	508.28	13.39	99.63	621.29	22599.92	777.00
38 37	2.05 2.08	0.76 0.79	515.50 522.48	13.76 14.14	97.35 95.15	626.61 631.74	21978.63 21352.02	776.92 776.83
36	2.11	0.80	529.13	14.45	93.05	636.63	20720.28	776.75
35 34	2.13 2.16	0.82 0.84	535.60 541.83	14.76 15.09	91.02 89.05	641.37 645.97	20083.65 19442.28	776.67 776.58
3 4 33	2.18	0.85	547.82	15.32	87.18	650.32	18796.31	776.50
32	2.21	0.86	553.59	15.47	85.41	654.47	18145.98	776.42
31 30	2.23 2.25	0.89 0.90	559.14 564.47	16.01 16.28	83.58 81.90	658.73 662.64	17491.52 16832.79	776.33 776.25
29	2.27	0.92	569.61	16.51	80.29	666.41	16170.14	776.17
28 27	2.29 2.31	0.92 0.94	574.54 579.27	16.56 16.98	78.80 77.25	669.89 673.50	15503.73 14833.84	776.08 776.00
26	2.33	0.96	583.81	17.21	75.82	676.84	14160.34	775.92
25 24	2.34 2.36	0.97 0.98	588.17 592.34	17.44 17.66	74.44 73.12	680.05 683.13	13483.50 12803.45	775.83 775.75
23	2.38	0.97	596.32	17.48	71.98	685.79	12120.33	775.67
22	2.39	1.00	600.14	18.06	70.67 69.53	688.86	11434.54	775.58
21 20	2.41 2.42	1.01 1.02	603.77 607.23	18.20 18.37	68.44	691.50 694.05	10745.68 10054.17	775.50 775.42
19	2.43	1.03	610.53	18.55	67.40	696.48	9360.13	775.33
18 17	2.44 2.46	1.04 1.05	613.65 616.62	18.70 18.83	66.42 65.49	698.77 700.94	8663.65 7964.88	775.25 775.17
16	2.47	1.05	619.41	18.97	64.61	703.00	7263.94	775.08
15 14	2.48 2.49	1.05 1.06	622.05 624.55	18.91 19.02	63.84 63.05	704.79 706.63	6560.94 5856.15	775.00 774.92
13	2.50	1.08	626.92	19.36	62.24	708.52	5149.52	774.83
12	2.51	1.08 1.09	629.13 821.10	19.49 10.50	61.54 en en	710.16 711.67	4441.00 3730.84	774.75 774.87
11 10	2.51 2.53	1.09 1.11	631.19 634.26	19.59 19.91	60.89 59.87	711.67 714.05	3730.84 3019.17	774.67 774.58
9	0.00	0.00	0.00	0.00	256.13	256.13	2305.13	774.50
8 7	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	2049.00 1792.88	774.42 774.33
6	0.00	0.00	0.00	0.00	258.13	256.13	1536.75	774.25
5 4	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	256.13 256.13	256.13 256.13	1280.63 1024.50	774.17 774.08
3	0.00	0.00	0.00	0.00	256.13	256.13	768.38	774.00
2	0.00	0.00	0.00	0.00 0.00	256.13 256.12	256.13 256.13	512.25 256.13	773.92
1	0.00	0.00	0.00	0.00	256.13	256.13	256.13	773.83

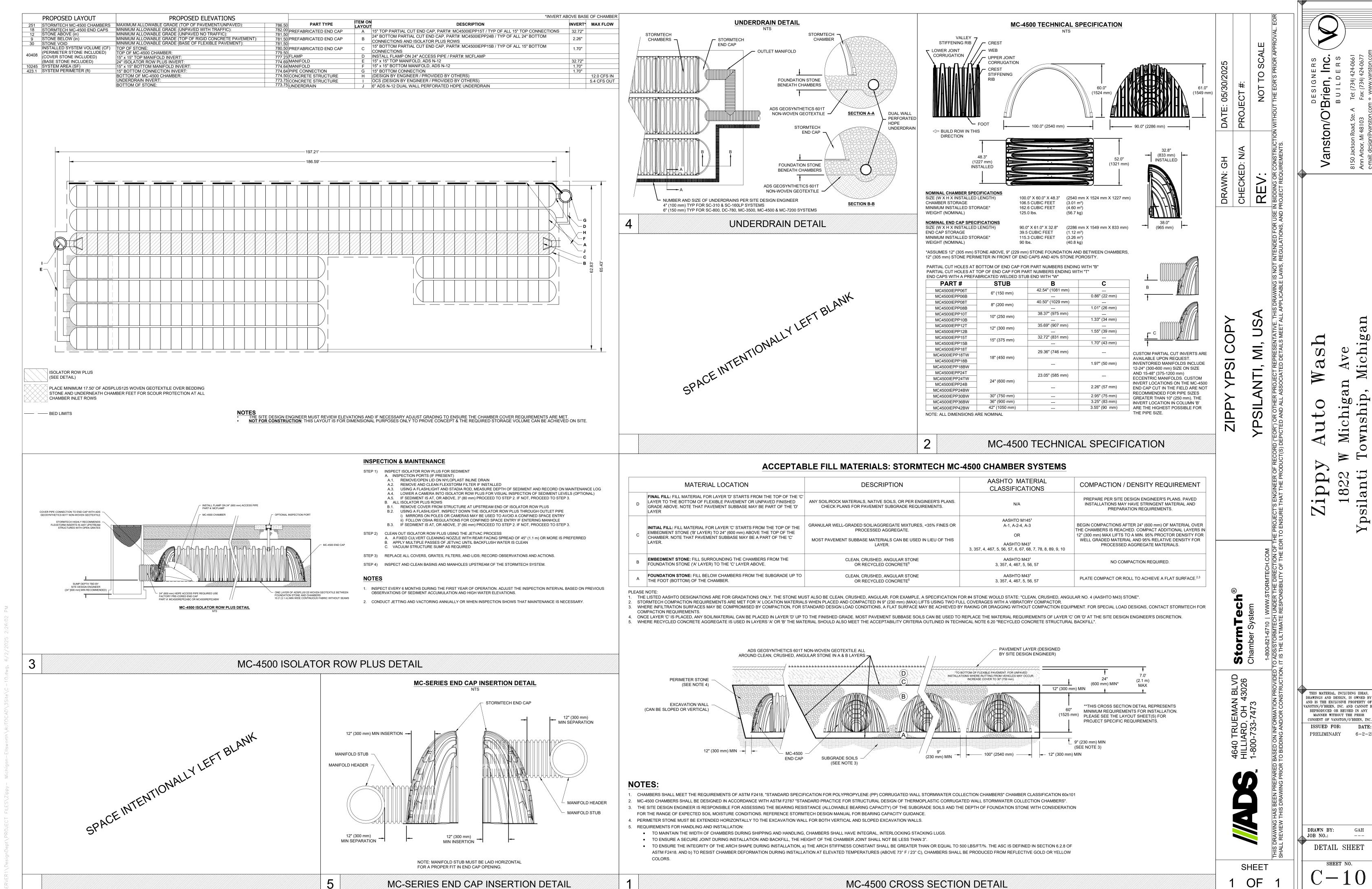
	Underground Store Elevation	Cumulative Volume	oee ivi anutacturi	er stage storage deta	an o neet 0-10				
		(cft)							
	780.50 780.00	39957.59 38420.84							
	779.50	36884.09							
	779.00	35122.98							
	778.50	32582.31							
	778.00 777.50	29557.22 26203.91							
	777.00	22599.92							
	776.50	18796.31							
	776.00	14833.84							
	775.50	10745.68							
	775.00 774.50	6560.94 2305.13							
	774.36	0							
	Detention Volume Pr	ovided=	39,958	cubic feet					
	Detention Volume Re		39,797	cubic feet					
irst Flush Elevation									
First Flush storage volume required=	¥f=	5,831		× _{ff} =	E ₁	+	(V _{ff} - V ₁)	x	(E;
First Flush storage volum e just below required amount⊨	V ₁ =	5,150					(V ₂ - V ₁)		
First Flush storage volume just above required amount=	V ₂ =	5,856							
Elevation at First Flush storage volume	E ₁ =	774.83		× _{ff}	=	774.91			+
V ₁ = Elevation at First Flush storage volume	E ₂ =	774.92		"					
V ₂ =	L2-								
ankfull Elevation Calculation									
Bankfull storage volume required=	₩bf=	11,854		× _{bf=}	E ₁	+	(V _{bf} - V ₁)	x	(E;
Bankfull storage volume just below required amount=	V ₁ =	11,435					(V ₂ - V ₁)		
Bankfull storage volume just abov e required amount≒	√ ₂ =	12,120							
Elevation at Bankfull storage volume	E ₁ =	775.58		× _{bf}	=	775.63			
V ₁ = Elevation at Bankfull storage volume	E ₂ =	775.67							+
V ₂ =	-								-
00-Year Elevation Calculation				U		l -			
100-Year storage volume required= 100-Year storage volume just below	V _{det=} V₁=	39,797 39,701		×de f	E ₁	+	(V _{det} - V ₁) (V ₂ - V ₁)	X	(E
required amount=							(¥2 - ¥1)		
100-Year storage volume just abov e required amount=	V ₂ =	39,958							
Elevation at 100-Year storage volume V ₁ =	E ₁ =	780.42		×det	=	780.45			
Elevation at 100-Year storage volume	E ₂ =	780.50							+
V ₂ =									
llowable Outflow Calculation Based on Acreage:					Property Area=	2.49	acres		
Based on Adreage: Q _a =	0.15	cfs/acre			, торону Агеа=	۲۳.۵ ۲۳.۵	40100		
=	0.15	cts/acre	х	2.49	acres				
				2.43	a0105				
=	0.37	cfs							
utlet Structure Calculations irst Flush Outlet									
^h avg ⁼	2/3(X _{ff} , X ₀)	=	0.667	*(774.91	-	773.75)	
^h avg ⁼	0.78	ft							
o _{ff} =	0.07	cts							
A ff =	Q _{me}	ox f	=	n	.07	=	0.0154	ft²	
	0.62(64.4 x			_ ~					
	0.02(0π.π λ	h _{avg}) ^{0.5}		0.62(64.4 x	h _{avg}) ^{0.5}				
				0.62(64.4 x	h _{avg}) ^{0.5} 0.01636	t²			
	Use 3 - 1" holes at o	utlet elevation		0.62(64.4 x A _{off} =	0.01636	tť			
		utlet elevation	=	0.62(64.4 x A _{off} =	-	tf ²			
^Q act ff ⁼ ankfull Discharge	Use 3 - 1" holes at o 0 62 x A _{off} x (64.4 x	utet elevation		0.62(64.4 x A _{off} =	0.01636 cfs		772 75		
^Q act ff ⁼	Use 3 - 1" holes at o	utlet elevation	= 0.667	0.62(64.4 x A _{off} =	0.01636	tf -	773.75)	
^Q actff ⁼ ankfull Discharge ^h avgbf ⁼ ^h avgbf ⁼	Use 3 - 1" holes at o 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26	h _{avq}) ^{0,5} =	0.667	0.62(64.4 x A _{off} = 0.07	0.01636 cfs 775.63	-)	
Qactiff = ankfull Discharge havgbf = havgbf = heck to confirm that the Bankfull storm vo	Use 3 - 1" holes at o 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26	utet elevation h _{and}) ^{0.5} = t	0.667	0.62(64.4 x A _{off} = 0.07 * (0.01636 cfs 775.63	-)	
Qact ff = ankfull Discharge havgbf = heck to confirm that the Bankfull storm vo	Use 3 - 1" holes at o 0 62 x A _{off} x (64.4 x 2/8(X _{bf} -X ₀) 1.26 lume discharged throu 0 62 x A _{off} x (64.4 x l	utet elevation h _{avg}) ^{0.5} = t gh first flush in less tha	0.667 an approx. 40 hou =	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 hill 0.091	0.01636 cfs 775.63 s, additional holes sha	- all be place at the fi rst)	
Qactiff = ankfull Discharge havgbf = havgbf = heck to confirm that the Bankfull storm vo	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x 2/8(X _{bfr} -X ₀) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x l	utet elevation h _{and}) ^{0.5} = t	0.667 an approx. 4 0 hou	0.62(64.4 x A _{off} = 0.07 * (0.01636 cfs 775.63 s, additional holes sh:	-			
ankfull Discharge havg-bf* heck to confirm that the Bankfull storm vo Q = bf De watering Time =	Use 3 - 1" holes at o 0 62 x A _{off} x (64.4 x 2/8(X _{bf} -X ₀) 1.26 lume discharged throu 0 62 x A _{off} x (64.4 x l	utet elevation h _{avg}) ^{0.5} = t gh first flush in less tha	0.667 an approx. 40 hou = 11,854	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 hill 0.091	0.01636 cfs 775.63 s, additional holes sha	- all be place at the fi rst			
ankfull Discharge havg-br havg-br heck to confirm that the Bankfull storm vo g = De watering Time =	Use 3 - 1" holes at of 0 62 x A _{off} x (64.4 x 2.6(X _{btr} X ₀) 1.26 ume discharged throu 0 62 x A _{off} x (64.4 x 1.26 Q _{bf}	ufet elevation h _{aug}) 0.5 = t gh first flush in less thathaught) 0.5 =	0.667 an approx. 40 hou = 11,854	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 hill 0.091	0.01636 cfs 775.63 s, additional holes sha	- all be place at the fi rst)	
ankfull Discharge havg-br havg-br heck to confirm that the Bankfull storm vo Q = De watering Time =	Use 3 - 1" holes at of 0 62 x A _{off} x (64.4 x 2.8 (X _{bf} X ₀) 1.26 for a ged through 0 62 x A _{off} x (64.4 x 1.4	utet elevation havg) 0.5 = t gh first flush in less that havg an) 0.5 = bottom) 0.5 *	0.667 an approx. 40 hou = 11,854	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 hill 0.091	0.01636 cfs 775.63 s, additional holes sha	- all be place at the fi rst		773.75))°
ankfull Discharge havgbf havgbf heck to confirm that the Bankfull storm vo Qbf De watering Time = O-Year Storm Qbf	Use 3 - 1" holes at of 0 62 x A _{off} x (64.4 x 2.8(X _{bff} -X ₀) 1.26 for a constant of the con	utet elevation have 0.5 = t the strict flush in less that have at 0.5 = t bottom) 0.5	0.667 an approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08	- all be place at the first hr	flush elevation	773.75))°
Qactiff = ankfull Discharge havg-bf = havg-bf = heck to confirm that the Bankfull storm vo Quf = De watering Time = Ou-Year Storm Quf = Quf =	Use 3 - 1" holes at of 0 62 x A _{off} x (64.4 x 2.8 (X _{bf} X ₀) 1.26 for a ged through 0 62 x A _{off} x (64.4 x 1.4	utet elevation havg) 0.5 = t gh first flush in less that havg an) 0.5 = bottom) 0.5 *	0.667 an approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08	- all be place at the first hr	flush elevation	773.75))°
Qactiff = ankfull Discharge havg-br heck to confirm that the Bankfull storm vo Q = br = De watering Time = Ou-Year Storm Quf = Quf = Quf =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.6(X _{bf} -X ₀) 1.26 for a constant of the cons	utet elevation havg) 0.5 = t gh first flush in less that havg an) 0.5 = bottom) 0.5 *	0.667 an approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 h 0.091 =	0.01636 ofs 775.63 s, additional holes shorts 36.08	- all be place at the first hr 780.45	flush elevation	773.75))°
Qactiff = ankfull Discharge havg-bf = havg-bf = heck to confirm that the Bankfull storm vo Q = bf = De watering Time = Out = Quf = Quf = Quf =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8 (X _{bf} X ₀) 1.26 for a constant and the	utet elevation havg) 0.5 = t t gh first flush in less that havger) 0.5 = bottom) 0.5 * cts - cts	0.667 an approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08 (64.4 * (- all be place at the first hr 780.45	flush elevation	7773.75))°
Qactiff = ankfull Discharge havg-bf = havg-bf = heck to confirm that the Bankfull storm vo Qaf = De watering Time = Out = Quf = Qu	Use 3 - 1" holes at of 0 62 x A _{off} x (64.4 x 2.8(X _{bff} -X ₀) 1.26 for a constant of the con	utet elevation havg) 0.5 = t t gh first flush in less that havger) 0.5 = bottom) 0.5 * cts - cts	0.667 an approx. 40 hou = 11,854 0.091 0.0164	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08 (64.4 * (- all be place at the first hr 780.45	flush elevation))°
ankfull Discharge havgbf havgbf heck to confirm that the Bankfull storm vo Q = De watering Time = De-Year Storm Quf =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26 for a constant of the cons	utet elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08 (64.4 * (- all be place at the first hr 780.45	flush elevation))°
ankfull Discharge havgbf havgbf heck to confirm that the Bankfull storm vo Qhf De watering Time = Out = Qui = Qui = Qui = Amax 100 = Amax 100 =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26 for 1.2	utet elevation have 0.5 = t the strict flush in less that have at 0.5 = t bottom) 0.5 * cts cts x100 X 100-X 187) 0.5 outlet elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164	0.62(64.4 x A _{off} = 0.07 * (ors. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08 (64.4 * (0.374 163 (X ₁₀₀ -X _M)) ^{0,5}	- all be place at the first hr 780.45	flush elevation))°.
ankfull Discharge havg-br havg-br heck to confirm that the Bankfull storm vo Q _{bf} = De watering Time = Q _{bf} = Q _f = Q	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8 (X _{kf} -X ₀) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{kf} Q _{kf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62*A _{off} (0.62*G*(X ₁₀₀ -X) 0.62(64.4 x)	utet elevation havg) 0.5	0.667 an approx. 40 hou = 11,854 0.091 0.0164 Qbf	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 hi 0.091 =	0.01636 ofs 775.63 s, additional holes shorts 36.08 (64.4 * (0.374 163 (X ₁₀₀ -X _{ld})) ^{0.5} 0.01091	- all be place at the first hr 780.45	- 0.211 0.0149	ft²	
ankfull Discharge havgbf havgbf heck to confirm that the Bankfull storm vo Qhf De watering Time = Out = Qui = Qui = Qui = Amax 100 = Amax 100 =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26 for 1.2	utet elevation have 0.5 = t the strict flush in less that have at 0.5 = t bottom) 0.5 * cts cts x100 X 100-X 187) 0.5 outlet elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shacts 36.08 (64.4 * (0.374 163 (X ₁₀₀ -X _M)) ^{0,5}	- all be place at the first hr 780.45	flush elevation		
ankfull Discharge havgbf havgbf havgbf heck to confirm that the Bankfull storm vo Quf hf De watering Time = Quf = Qu	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8(X _{bf} -X ₀) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x 1.4 x	utet elevation have 0.5 = t t gh first flush in less the have at 0.5 = cots x100 X100-X100-X100 X100-X100 X100-X100 X100-X100 x100	0.667 an approx. 40 hou = 11,854 0.091 0.0164 approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 h; 0.091 = *	0.01636 cfs 775.63 s, additional holes shacfs 36.08 (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0.5} 0.01091	- all be place at the first hr 780.45 - = ft ²	- 0.211 0.0149	ft²	
ankfull Discharge havgbf havgbf heck to confirm that the Bankfull storm vo Quf = De watering Time = Quf	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.8(X _{bfr} -X ₀) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x 1.4 x	utet elevation have 0.5 = t t gh first flush in less the have at 0.5 = cots x100 X100-X100-X100 X100-X100 X100-X100 X100-X100 x100	0.667 an approx. 40 hou = 11,854 0.091 0.0164 approx. 40 hou = 11,854 0.091	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 h; 0.091 = *	0.01636 cfs 775.63 s, additional holes shacfs 36.08 (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0.5} 0.01091	- all be place at the first hr 780.45 - = ft ²	- 0.211 0.0149	ft²	
ankfull Discharge havgbf havgbf havgbf heck to confirm that the Bankfull storm vo Quf br De watering Time = Our = Quf	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8 (X _{hf} X _o) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{hf} Q _{hf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.119	utet elevation the properties of the properti	0.667 an approx. 40 hou = 11,854 0.091 0.0164 Qbf = 0.0109 <	0.62(64.4 x A _{off} = 0.07 * (Irs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shads (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0,5} 0.01091 (64.4 * (0.163	- all be place at the first hr 780.45 - = ft² 780.45 cfs	- 0.211 0.0149	ff ² 775.63	
ankfull Discharge havgtof havgtof havgtof neck to confirm that the Bankfull storm vo Quf = De watering Time = Out = Quf =	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8(X _{kf} -X ₀) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) Ver Q _{kf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.119 2.8(X ₁₀₀ -X _{kf}) + (X _{kf} -X) 2.8 * (5.09	utetelevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164 Qbf = 0.0109 <	0.62(64.4 x A _{off} = 0.07 * (Irs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shads (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0,5} 0.01091 (64.4 * (0.163	- all be place at the first hr 780.45 - = ft² 780.45 cfs	- 0.211 0.0149	ff ² 775.63)) ⁰ .
ankfull Discharge havgbof havgbof neck to confirm that the Bankfull storm vo O-Year Storm O-Year Storm O-Me O	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8 (X _{hf} X _o) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{hf} Q _{hf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q ₃ 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.119 2.8 (X ₁₀₀ -X _{hf}) + (X _{hf} -X) 2.8 * (5.09 0.62*A _{ohf} (2*g*(h _{avg} bdt) 0.62	utet elevation t t t t t t t t t	0.667 an approx. 40 hou = 11,854 0.091 0.0164 Qbf = 0.0109 <	0.62(64.4 x A _{off} = 0.07 * (Irs. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shads (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0,5} 0.01091 (64.4 * (0.163	- all be place at the first hr 780.45 - = ft² 780.45 cfs	- 0.211 0.0149	ff ² 775.63	
ankfull Discharge havgbf havgbf havgbf neck to confirm that the Bankfull storm vo Quf = De watering Time = Out = Quf = Amax 100 = Amax 10	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x 2.66 x A _{off} x (64.4 x 1.26 x 1	utet elevation the elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164 abf = 0.0109 <	0.62(64.4 x A _{off} = 0.07 * (urs. If it exceeds 40 hr 0.091 = 0.0062(64.4 x A _{off} = 0.007	0.01636 cfs 775.63 s, additional holes shaces (64.4 * (0.374 163 (×100-×1x1) ^{0.5} 0.01091 (64.4 * (0.163) + (- all be place at the first hr 780.45 = ft ² 780.45 cfs 775.63	0.211 0.0149	775.63 773.75	
ankfull Discharge havgetineck to confirm that the Bankfull storm vo Quit = De watering Time = Quit = Quit = Quit = Quit = Quit = Quit = Amax 100 = Amax 100 = havgboth = havg	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8(X _{bf} -X _o) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{bf} Q _{bf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62(64.4 x) 0.62 0.119 2.8(X ₁₀₀ -X _{bf}) + (X _{bf} -X) 2.8 * (5.09 0.62*A _{obf} (2*g*(h _{avg}) _{bdf} 0.62 0.184 ear storm orifice(s) wi	utet elevation total elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164 0.0109 < 0.0164 are contributing s	0.62(64.4 x A _{off} = 0.07 * (Irs. If it exceeds 40 h 0.091 = *	0.01636 cfs 775.63 s, additional holes sharefs 36.08 (64.4*(0.374 163 (X4 ₀₀ -X _H)) ^{0.5} 0.01091 (64.4*(0.163) + ((64.4	- all be place at the first hr 780.45 = ft ² 780.45 cfs 775.63	0.211 0.0149	775.63 773.75	
ankfull Discharge havgbof havgbof heck to confirm that the Bankfull storm vo Quf =	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8 (X _{hf} X _o) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{hf} Q _{hf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62(64.4 x) 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.119 2.8 (X ₁₀₀ -X _{hf}) + (X _{hf} -X) 2.8 * (5.09 0.62*A _{ohf} (2*g*(h _{aug} both 0.62 0.184	utet elevation total elevation	0.667 an approx. 40 hou = 11,854 0.091 0.0164 - 0.0109 <- 0.0164	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 h 0.091 = *	0.01636 cfs 775.63 s, additional holes shads (64.4 * (0.374 163 (X ₁₀₀ -X _H)) ^{0,5} 0.01091 (64.4 * (0.163) + ((64.4	- all be place at the first hr 780.45 = ft ² 780.45 cfs 775.63	0.211 0.0149	775.63 773.75	
ankfull Discharge havgetineck to confirm that the Bankfull storm vo Quit = De watering Time = Quit = Quit = Quit = Quit = Quit = Quit = Amax 100 = Amax 100 = havgboth = havg	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8(X _{bf} -X _o) 1.26 lume discharged throu 0.62 x A _{off} x (64.4 x) V _{bf} Q _{bf} 0.62*A _{off} (2*g*(X ₁₀₀ -X) 0.62 0.211 Q _a 0.163 Q _{max} 0.62(64.4 x) Use 2 - 1" holes at 0.62(64.4 x) 2.8 (X ₁₀₀ -X _{bf}) + (X _{bf} -) 2.8 * (5.09 0.62*A _{obf} (2*g*h _{avg} both 0.62 0.184 ear storm orifice(s) wi 2./3 (utet elevation hangle 0.5	0.667 an approx. 40 hou = 11,854 0.091 0.0164 - 0.0109 <- 0.0164 are contributing: -	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 hi 0.091 = *	0.01636 cfs 775.63 s, additional holes shadis (64.4 * (- all be place at the first hr 780.45 = ft ² 780.45 cfs 775.63	0.211 0.0149	775.63 773.75	
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ankfull Discharge havgtof havgtof havgtof heck to confirm that the Bankfull storm vo Q = bf De watering Time = Out = Qut =	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x) 2/8(X _{bf} - X _o) 1.26 lume discharged throug 0.62 x A _{off} x (64.4 x) V _{bf} Q _{bf} 0.62*A _{off} (2*g*(X ₁₀₀ - X) 0.62 0.211 Q _a 0.163 2max 0.62(64.4 x) Use 2 - 1" holes at 0.62 0.119 2/8(X ₁₀₀ - X _{bf}) + (X _{bf} - X ₁₀₀ - X) 0.62 0.119 2/8(X ₁₀₀ - X _{bf}) + (X _{bf} - X ₁₀₀ - X _{bf}) 0.62 0.184 ear storm orifice(s) with 2/3 (2/3 (3.21 0.62*A _{off} (2*g*h _{oog} both 0.62 0.097 olume is discharged in 0.62		0.667 an approx. 40 hou = 11,854 0.091 0.0164 - 0.0109 <- 0.0164 are contributing s 0.0109	0.62(64.4 x A _{off} = 0.07 * (ITS. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shadis (64.4 * (0.163 (64.4 * (0.163) + ((64.4)	- all be place at the first hr 730.45 = ft² 780.45 cfs 775.63	0.211 0.0149	775.63 7773.75	
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ankfull Discharge havgtof havgtof heck to confirm that the Bankfull storm vo Q = beta De watering Time = Dewatering Time = Quere	Use 3 - 1" holes at of 0.62 x A _{off} x (64.4 x) 2/8(X _{bf} - X _o) 1.26 lume discharged throug 0.62 x A _{off} x (64.4 x) V _{bf} Q _{bf} 0.62*A _{off} (2*g*(X ₁₀₀ - X) 0.62 0.211 Q _a 0.163 2max 0.62(64.4 x) Use 2 - 1" holes at 0.62 0.119 2/8(X ₁₀₀ - X _{bf}) + (X _{bf} - X ₁₀₀ - X) 0.62 0.119 2/8(X ₁₀₀ - X _{bf}) + (X _{bf} - X ₁₀₀ - X _{bf}) 0.62 0.184 ear storm orifice(s) with 2/3 (2/3 (3.21 0.62*A _{off} (2*g*h _{oog} both 0.62 0.097 olume is discharged in 0.62		0.667 an approx. 40 hou = 11,854 0.091 0.0164 - 0.0109 <- 0.0164 are contributing s 0.0109	0.62(64.4 x A _{off} = 0.07 * (ITS. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shadis (64.4 * (0.163 (64.4 * (0.163) + ((64.4)	- all be place at the first hr 730.45 = ft² 780.45 cfs 775.63	0.211 0.0149	775.63 7773.75	
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ankfull Discharge havgbof havgbof heck to confirm that the Bankfull storm vo Quf = De watering Time = Devatering Time = Quf = Quf = Quf = Quf = Quo	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2.8 (X _{bf} X _o) 1.26 lume discharged throughout the discharged through the discharged throughout the discharged throughout the discharged throughout the discharged throughout the discharged through the		0.667 an approx. 40 hou = 11,854 0.091 0.0164 abf = 0.0164 0.0164 0.0164 0.0169	0.62(64.4 x A _{off} = 0.07 * (ITS. If it exceeds 40 h 0.091 =	0.01636 cfs 775.63 s, additional holes shadis (64.4*(0.374 163 (X400-X _H)) ^{0.5} 0.01091 (64.4*(0.163) + ((64.4)) (64.4	- all be place at the first hr 730.45 = ft² 780.45 cfs 775.63	0.211 0.0149	775.63 7773.75	
ankfull Discharge havgbof havgbof havgbof heck to confirm that the Bankfull storm vo Quf = De watering Time = Devatering Time = Quf = Quf = Quf = Quf = Quf = Quo = Amax 100 = Amax 100 = havgboth ha	Use 3 - 1" holes at or 0.62 x A _{off} x (64.4 x) 2/8(X _{bf} - X _o) 1.26 lume discharged through the properties of the		0.667 an approx. 40 hou = 11,854 0.091 0.0164 ohd ohd	0.62(64.4 x A _{off} = 0.07 * (irs. If it exceeds 40 h 0.091 = *	0.01636 cfs 775.63 s, additional holes shadis (64.4 * (0.163 (64.4 * (0.163) + ((64.4)	- all be place at the first hr 730.45 = ft² 780.45 cfs 775.63	0.211 0.0149	775.63 7773.75	



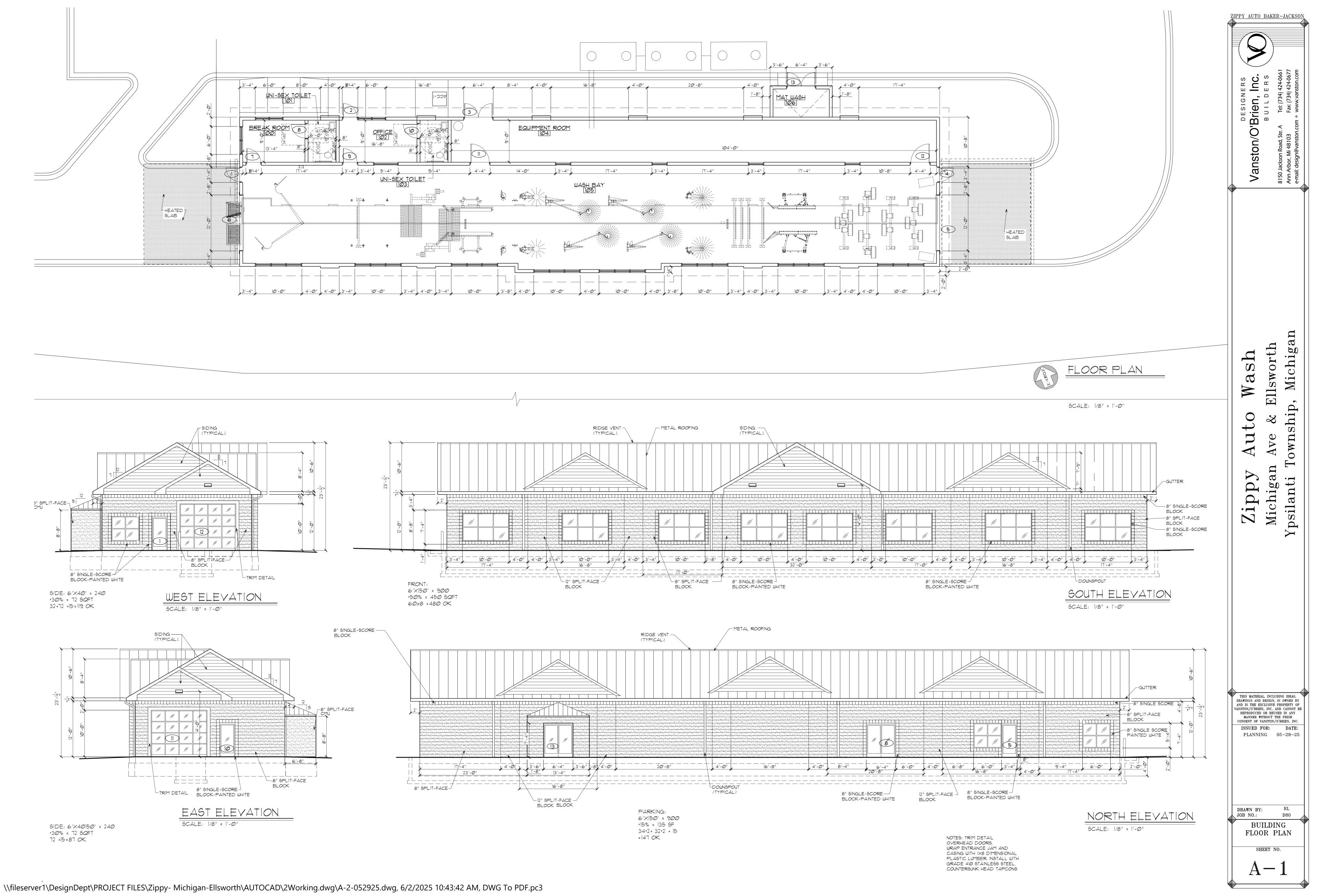
DRAWN BY: JOB NO.:

STORM WATER CALCULATIONS

C-9



NSTON/O'BRIEN, INC. AND CANNOT BE DATE: 6-2-25



SHEET NO. A-2





MICHIGAN AVE NE



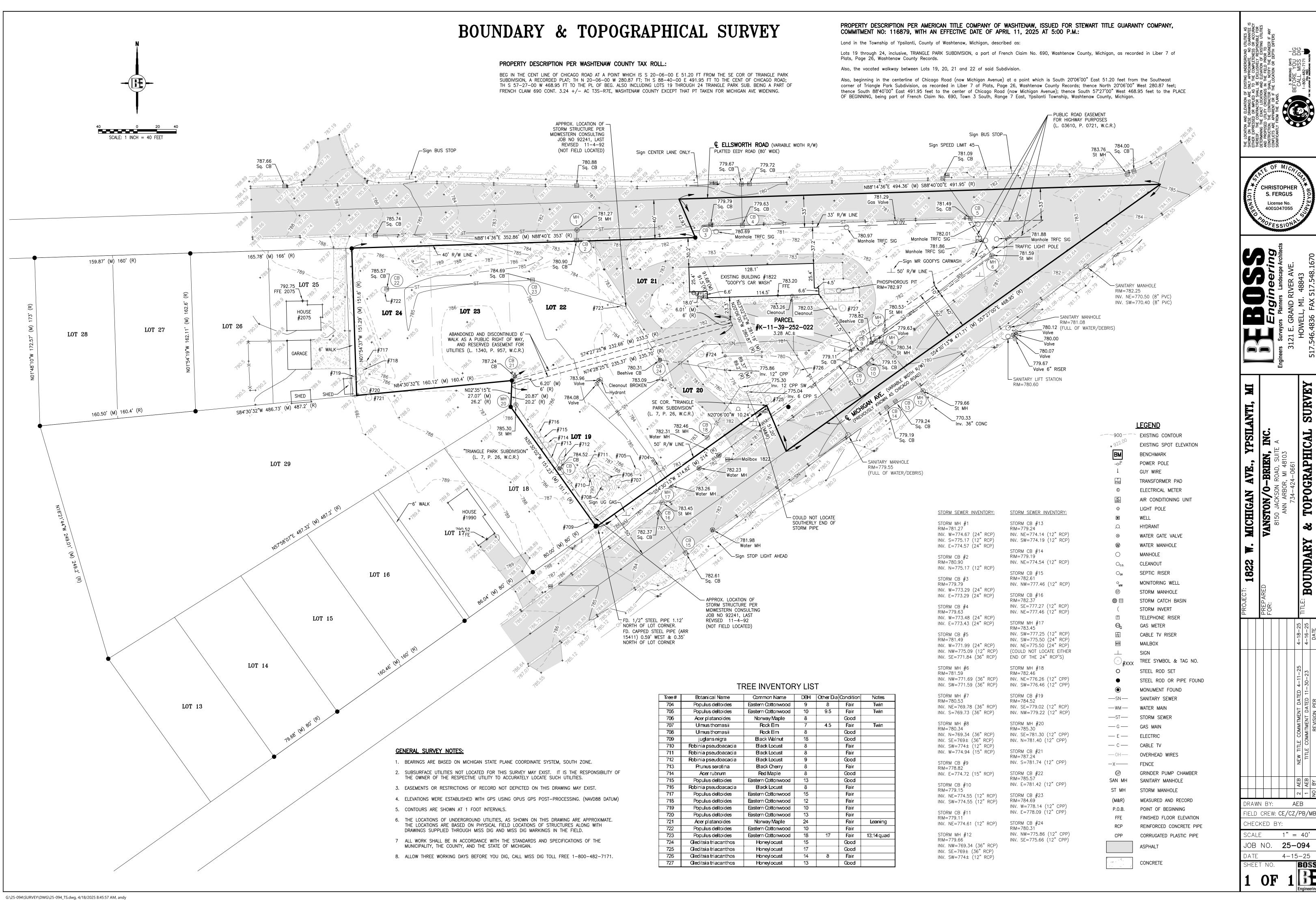
MICHIGAN AVE NW



ELLSWORTH AVE SE



ELLSWORTH SW





AEB

1" = 40'