

July 17, 2012

Blair Bowman
46100 Grand River Ave
Novi, MI 48374

RE: Design and Construction Standards Variance Request
Ride and Drive Automotive Research Lot (SP12-29)

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Terry K. Margolis

Andrew Mutch

Justin Fischer

Wayne Wrobel

Laura Marie Casey

City Manager
Clay J. Pearson

**Director of Public Services/
City Engineer**
Rob Hayes, P.E.

Dear Mr. Bowman:

We have reviewed your application for a Design and Construction Standards variance to allow parking lot pavement striping other than white (as required by the Michigan Manual of Uniform Traffic Control Devices). The variance request is associated with the above referenced site plan, which includes an automotive testing area as a primary use and overflow parking as a secondary use. The application states that "regular striping colors interfere with Ride and Drive usage", and you have indicated that overflow parking in this area for the Suburban Collection Showplace and associated facilities would be an occasional, secondary use. Therefore, you have proposed the use of a muted color for parking lot striping that would facilitate parking as well as the ride and drive activities.

Based upon the associated site plan submittal, it has been demonstrated that the use of standard accepted striping colors would result in an operational hardship to the "Ride and Drive" activities which would involve temporary striping of the paved area to facilitate automotive testing. A muted striping color would allow the delineation of parking stalls to meet the design standards without interfering with the site's primary operations. It has been determined that the implementation of a muted striping color will not be detrimental to the public as long as the proposed color is not of inadequate visibility, such as black or dark grey, and does not have a contrary meaning. For example, the color blue is associated with accessible parking and therefore could not be used.

A Design and Construction Standards variance has been granted for the use of a muted paving color with the condition that the final color choice be submitted to the Engineering Division for final review and approval.

Sincerely,

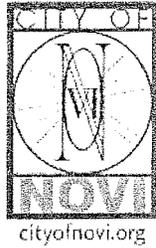
DEPARTMENT OF PUBLIC SERVICES

Rob Hayes, P.E.
Director of Public Services/City Engineer

Department of Public Services
Field Services Complex
26300 Lee BeGole Dr.
Novi, Michigan 48375
248.735.5640
248.735.5659 fax

cityofnovi.org

cc: Barbara McBeth, Deputy Director Community Development



Request for Variance Design and Construction Standards

Applicant Information

Name: Blair Bowman
Address: 46100 Grand River Ave
Novi, MI 48374
Phone No: 248-348-5600

Engineer Information

Name: Paul Lewsley
Address: 18620 W. 10 Mile Rd
Southfield, MI 48075
Phone No: 248-424-9510

Applicant Status (please check one):

Property Owner Developer Developer / Owner Representative
Other _____

Project Name Ride and Drive Automotive Lot at Suburban Collection Showplace

Project Address/Location 26925 Taft Rd. Novi, MI 48374

Variance Request Muted striping color and the use of striped end islands in lieu of curbed islands

Justification (attach additional pages if necessary)

As submitted with site plan application, regular striping colors interfere with Ride and Drive usage.

RECEIVED

JUL 13 2012

CITY OF NOVI
COMMUNITY DEVELOPMENT

INTERNAL USE

Date Submitted: _____

Code Section from which variance is sought: _____

Submittal Checklist: Twelve (12) sets of plans (folded and to scale)

One (1) copy of plan on 8.5 x 11 size paper

\$100 Filing Fee

TRAFFIC REVIEW

June 29, 2012

Barbara McBeth, AICP
Deputy Director of Community Development
City of Novi
45175 W. Ten Mile Rd.
Novi, MI 48375



**SUBJECT: Ride and Drive Automotive Research Lot (6.6318 Acres), SP#12-28,
Traffic Review of Preliminary Site Plan**

Dear Ms. McBeth:

At your request, we have reviewed the above and offer the following recommendation and supporting comments.

Recommendation

We recommend approval of the preliminary site plan, subject to the granting of the needed variance and waiver, as well as the **bolded** items below being satisfactorily addressed by the final site plan.

Project Description

What is the Applicant proposing?

1. The applicant, Blair Bowman, proposes to improve a 6.63-acre parcel – east of the Suburban Collection Showplace and recently approved site for Hyatt Place Hotel – for dual usage as both a vehicle demonstration/testing area and an overflow parking lot.

Trip Generation & Traffic Study

How much new traffic would be generated? Is a traffic study required?

2. We have no basis for forecasting how much new traffic the new use might generate. The Planning Commission may wish to ask the applicant about this.

Vehicular Access Locations

Do the proposed driveway locations meet City spacing standards?

3. No new public-road access drives are proposed. It is our understanding that vehicular access to the subject site will generally occur via the existing parking lot connection in the southwest corner or one of the two proposed new parking lot connections further north.

Vehicular Access Improvements

Will there be any improvements to the public road(s) at the proposed driveway(s)?

4. Not applicable.

Driveway Design and Control

Are the driveways acceptably designed and signed?

5. No. With the proposed relocation of the existing gate from the southwest to the southeast corner of the site, **traffic will now be able to flow freely at the southwest corner to and from the existing east parking lot; hence, this parking lot connection is required by Section 2506.13 of the Zoning Ordinance to have an end island on its north side** (within the proposed overflow parking area, requiring the loss of one space).
6. More generally, we recommend that the City carefully consider the possible public-safety implications of permitting what appears to be unimpeded access between the east lot and proposed automotive "research" facility. The applicant should comment on this issue; for example, would the three proposed ungated access points be blocked by traffic cones while any of the automotive "research" activities are underway?

Pedestrian Access

Are pedestrians safely and reasonably accommodated?

7. We assume that there will be minimal pedestrian traffic in and out of the subject site, and that any walkers could safely use the parking lot aisles and proposed access drives.

Parking and Circulation

Are parking spaces appropriately located and designed? Can vehicles safely and conveniently maneuver through the site?

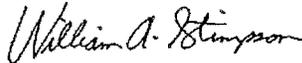
8. The proposed parking spaces and parking lot aisles appear to meet City dimensional standards. To proceed with the overall layout, however, **the following additional exceptions will be required:**
 - a. **A Planning Commission waiver of the requirement in Zoning Ordinance Section 2506.13 for raised and landscaped parking lot end islands.** The stated criteria for such a waiver are that the "internal traffic circulation is forecast to be low or where the raised islands would not be appropriate." The applicant should provide information relative to these criteria.
 - b. **A ZBA variance with respect to the applicability of Section 2506.13 to the seven-space permanent parking area proposed south of the existing one-story building. A variance is required because no end islands of any type are proposed at this location.**
9. The applicant proposes to stripe the overflow parking spaces in "muted tones"; most likely, in dark green paint. For the record, this is contrary to the long-established City policy (stated in the *Site Plan and Development Manual*) that pavement markings comply with the *Michigan Manual on Uniform Traffic Control Devices*, which requires that white be used to mark regular parking spaces. **At a minimum, the final site plan must clearly label the color of all new pavement markings. Also, the seven permanent parking spaces noted above need to be reconciled with the "muted" spaces shown on sheet C-1 for the same area.**

10. Our pre-application concern regarding the tripping hazard posed by the proposed rumble strips in the "noise and vibration testing area" has been partially addressed by narrowing that area to 16 ft (from the 30 ft proposed earlier) and shifting the area over to abut the proposed north curb. The preliminary site plan implies that this area would be cross-hatched, but does not confirm such. **The final site plan should provide a specification for any cross-hatching proposed (e.g., 4-inch yellow crosshatch at an indicated spacing of not less than 4 ft). Also, at a minimum, several No Parking Any Time (R7-1) signs should be posted (2 ft behind the curb) to deter people from parking in this area.**
11. Similarly, the 12-ft x 30-ft loading area shown by the northeast corner of the existing building should be marked with 4-inch yellow crosshatching, 4-ft on-center, and be designated by a **NO PARKING - LOADING ZONE (R7-6)** sign hung on the building façade at a height of at least 5 ft.
12. The standard detail on sheet C-4 for handicap parking signs should be updated to reflect the sign code now used for the **VAN ACCESSIBLE** plate in the 2011 **MMUTCD (R7-8P rather than R7-8A).**

Sincerely,
BIRCHLER ARROYO ASSOCIATES, INC.

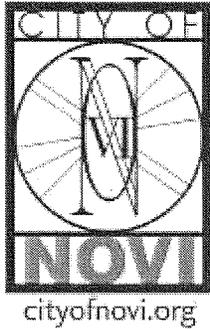


Rodney L. Arroyo, AICP
Vice President



William A. Stimpson, P.E.
Director of Traffic Engineering

**ADDITIONAL LANDSCAPE
WAIVER REQUEST REVIEW**



PLAN REVIEW CENTER REPORT

July 17, 2012

Revised Preliminary Site Plan Ride & Drive Automotive Research

Review Type

Revised Preliminary Landscape Review

Property Characteristics

- Site Location: Hudson Drive
- Site Zoning: I-1 Light Industrial
- Plan Date: 6/8/12 (unchanged)

Current Status

The Applicant has submitted additional information through their Landscape Architect dated 7/13/2012. The information documents in written form existing site landscape conditions and plant counts, as well as some of the landscape requirements that the Applicant does not intend to meet with the proposed improvements. No Landscape Plan has been submitted.

Recommendation

Approval of the Revised Preliminary Site Plan for SP#12-28 Ride and Drive Automotive Research Lot cannot be recommended at this time. The Applicant is seeking multiple waivers for required landscape. The applicant should submit a plan showing specific landscape waiver requests and quantifying each request (if applicable) prior to further consideration.

Ordinance Considerations

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Sec. 2509.3.b.)

1. A 3' tall landscaped berm is required along the I-96 right-of-way. No landscape berm is proposed and the Applicant will need a waiver from the City Council. The Applicant has indicated that the significant grade change effectively provides for the necessary grade buffer.
2. Existing healthy mixed vegetation is proposed to be preserved along the entire right of way. **If the Applicant will agrees that the grades and vegetation in this buffer area will remain permanently, the requirements for the berm and buffer plantings will have been met.**

Street Tree Requirements (Sec. 2509.3.b.)

1. Street trees are not required.

Parking Landscape (Sec. 2509.3.c.)

1. **No interior landscape islands are proposed. The Applicant will need waiver from the City Council. Staff cannot support the waiver.**

2. As no interior landscape islands are proposed, no interior parking lot canopy trees are proposed. Thirty four (34) trees would be required; none are provided. The Applicant will need waiver from the City Council. Staff cannot support the waiver.
3. As no interior landscape islands are proposed, no interior parking lot landscape area square footage is proposed. The Applicant will need waiver from the City Council. Staff cannot support the waiver.
4. Snow storage areas must be shown on the plan.

Parking Lot Perimeter Canopy Trees (Sec. 2509.3.c.(3))

1. Perimeter Parking Lot Canopy Trees are required per 35 LF surrounding parking and access areas. By virtue of the existing previously planted trees and existing healthy trees to remain, this requirement has been met. Again, **the Applicant should verify that the existing vegetation will remain in perpetuity.**

Building Foundation Landscape (Sec. 2509.3.d.)

1. A minimum 4' wide landscape bed is required around the entire building foundation. There exists area around the building at this time that could be landscaped. The Applicant has stated that this area will be landscaped with ornamental grasses. Additional shrub and perennial species should be added for seasonal interest and diversity. As this is the only area that the Applicant is proposing to receive new landscape materials, a landscape plan should be prepared and submitted for staff review and for City records.
2. A minimum landscape area of 8' x the building foundation length is required as foundation landscape area. A total of 1808 s.f. of landscape area is proposed, leaving a deficiency of 184 square feet. A slight modification and enlargement of the building foundation landscape area would allow the Applicant to meet the requirements. **If adequate foundation landscape area is not proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.**

Storm Basin Plantings (LDM)

1. Large shrub plantings are required for a total of 70% to 75% of the storm basin rim. No plantings are proposed. **If storm basin rim plantings are not proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.**

Plant List (LDM)

1. No Plant List has been provided. Please provide a plant list for any proposed plantings.

Planting Notations and Details (LDM)

1. No planting details have been provided. Please provide details per City standards.

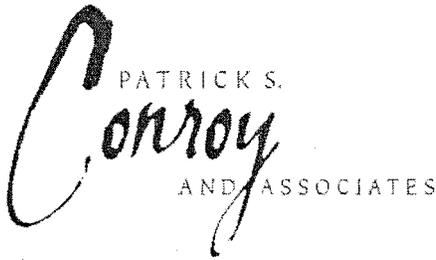
Irrigation (Sec. 2509 3.f.(6)(b))

- 1. An Irrigation Plan and Cost Estimate must be provided. All landscape areas are required to have an automatic irrigation system.**

Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance. For the landscape requirements, see the Zoning Ordinance landscape section on 2509, Landscape Design Manual and the appropriate items in the applicable zoning classification.



Reviewed by: David R. Beschke, RLA



7/13/2012

RIDE AND DRIVE AUTOMOTIVE RESEARCH LOT

TBON, LLC
 46100 GRAND RIVER AVE.
 NOVI, MI 48375

<u>Parking Lot Landscape</u>	<u>Required</u>	<u>Provided</u>
17 Islands @ 2 Trees Each.....	34	0
Perimeter Trees (1 per 35').....	34	34+ (Existing)
1174 LF		

Parking Lot Perimeter Landscape:

The proposed parking and vehicle test lot will have a 46' wide landscaped greenbelt on the west between the existing parking lot and the proposed lot. The south and east side of the proposed parking lot is surrounded by 7 plus acres of existing heavily planted detention basin/wetland mitigation area and easement along with natural vegetation on the east side. We feel this existing landscape meets or exceeds the perimeter parking lot landscape requirements.

<u>Frontage Landscape</u>	<u>Required</u>	<u>Provided</u>
Length: 523' (Parking Lot Frontage)		
Width.....	20'	32'
Canopy Trees (1 per 30').....	18	18+ (Existing)
Sub Canopy Trees (1 per 20').....	27	27+ (Existing)
Berm*.....	3'	3'+ (Existing)

*Existing & proposed topography creates a greater than 3' high berm above I-96 roadway

I-96 Road Frontage:

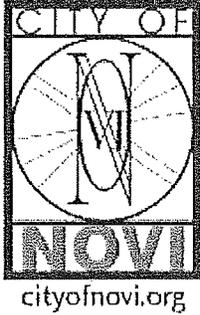
The remaining existing vegetation along with the existing vegetation located along I-96 and the property line create nearly an 90%-100% opacity along this road frontage. In addition, the existing elevation change sloping up from the freeway creates an existing berm greater than the required 3'. We feel these two conditions meet or exceed the required road frontage landscape requirements.

<u>Existing Building Landscape (226 LF)</u>	<u>Required</u>	<u>Provided</u>
Perimeter times 8'.....	1808 SF	1624 SF

Area to be landscaped with ornamental grasses

<u>Detention Basin Landscape (226 LF)</u>	<u>Required</u>	<u>Provided</u>
Basin Rim Area (500').....	350 LF	0
(70% of basin rim area)		

LANDSCAPE REVIEW



PLAN REVIEW CENTER REPORT

July 2, 2012

Preliminary Site Plan

Ride & Drive Automotive Research

Review Type

Preliminary Landscape Review

Property Characteristics

- Site Location: Hudson Drive
- Site Zoning: I-1 Light Industrial
- Plan Date: 6/8/12

Recommendation

Approval of the Preliminary Site Plan for SP#12-28 Ride and Drive Automotive Research Lot cannot be recommended at this time. The Applicant is seeking multiple waivers for required landscape and no landscape plan quantifying the requested waivers has been submitted. The applicant should submit a plan showing specific landscape waiver requests and quantifying each request (if applicable) prior to consideration by the Planning Commission.

Ordinance Considerations

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Sec. 2509.3.b.)

1. A 3' tall landscaped berm is required along the I-96 right-of-way. If no landscape berm is proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.
2. Right-of-way greenbelt planting calculations must be provided and requirements met. Existing healthy trees to be preserved may count toward the requirements. If no right-of-way plantings are proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.

Street Tree Requirements (Sec. 2509.3.b.)

1. Street trees are not required.

Parking Landscape (Sec. 2509.3.c.)

1. Please provide the required calculations for interior landscape area and call out those areas qualifying on the site plan. If no interior landscape area is proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.
2. Please provide calculations for required Parking Lot Canopy Trees and show the trees on the plan. If no interior parking lot trees are proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.
3. Snow storage areas must be shown on the plan.

Parking Lot Perimeter Canopy Trees (Sec. 2509.3.c.(3))

1. Perimeter Parking Lot Canopy Trees are required per 35 LF surrounding parking and access areas. If no perimeter canopy trees are proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.

Building Foundation Landscape (Sec. 2509.3.d.)

1. A minimum 4' wide landscape bed is required around the entire building foundation. Please provide this bed and plantings. If no foundation landscape is proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.
2. A minimum landscape area of 8' x the building foundation length is required as foundation landscape area. Please provide this calculation and landscape area. If adequate foundation landscape area is not proposed, the Applicant will need a waiver from the City Council. Staff cannot support the waiver.

Plant List (LDM)

1. No Plant List has been provided. Please provide a plant list for any proposed plantings.

Planting Notations and Details (LDM)

1. No planting details have been provided. Please provide details per City standards.

Irrigation (Sec. 2509 3.f.(6)(b))

1. An Irrigation Plan and Cost Estimate must be provided.

General

1. All landscape areas are required to have an automatic irrigation system.

Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance. For the landscape requirements, see the Zoning Ordinance landscape section on 2509, Landscape Design Manual and the appropriate items in the applicable zoning classification.

Reviewed by: David R. Beschke, RLA

WETLAND REVIEW



Environmental Consulting & Technology, Inc.

June 29, 2012

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 West Ten Mile Road
Novi, MI 48375

Re: Ride and Drive Automotive Research Lot (SP#12-29)
Wetland Review of the Preliminary Site Plan

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the proposed Ride and Drive Automotive Research Lot preliminary Site Plan (Plan) prepared and submitted by Environmental engineers, Inc. dated June 26, 2012. ECT visited the site on June 28, 2012 in order to verify wetland boundaries.

The proposed project is located between Grand River and I-96, just northwest of Taft Road (Section 16). Proposed work includes the construction of automotive testing areas (including noise and vibration testing area) as well as test track areas and a proposed stormwater detention basin with an ultimate outlet proposed to the north side of the property.

Site Comments

Based on our review of Novi aerial photos, Novi GIS, the City of Novi Official Wetlands and Woodlands Maps, and our site visit on June 28, 2012, it does not appear that this site contains regulated woodlands.

The site does, however, contain regulated wetland (existing "Wetland 6" according to the Plan) and associated 25-foot wetland buffer located in the northeast section of the property. This existing wetland area appears to have a surface water connection to the Walled Lake Branch of the Middle Rouge River.

Proposed Impacts

The current Plan does not involve wetland impacts. All proposed construction activities are outside of the regulated 25-foot wetland buffer. In addition, it appears as if the existing regulated wetland area and the associated 25-foot wetland buffer are to be preserved in a proposed wetland conservation easement.

The proposed stormwater detention basin that is located somewhat near the center of the site will ultimately outlet to an upland area, outside of the existing wetland and associated 25-foot wetland buffer.

Permits

The wetlands on the site appear to be regulated by the City of Novi and the MDEQ by virtue of an apparent surface water connection to the Walled Lake Branch of the Middle Rouge River. The wetlands appear to overflow to the drain that runs along the south side of the I-96 corridor,

2200 Commonwealth
Blvd., Suite 300
Ann Arbor, MI
48105

(734)
769-3004

FAX (734)
769-3164

which ultimately discharges to the Walled Lake Branch of the Middle Rouge River. In addition, the on-site wetland is within 500-feet of an open-water pond over 1-acre in size located north of the proposed project site, north of I-96.

However, as previously noted, the Plan does not propose impacts to wetland or wetland buffer and the stormwater outfall from the proposed detention basin will ultimately outlet to an up-land area.

As proposed, the project will not require a wetland permit from MDEQ or from the City of Novi.

Comments

1. Due to the nature of the proposed site use, and the close proximity of the detention basin outfall to the existing wetland and drain located north of the site, ECT recommends that the Applicant incorporate a stormwater treatment structure (i.e., oil/water separator/Stormceptor Unit) into the proposed utility plan in order to help ensure that oils/greases from the site are contained on-site and not discharged to regulated water features (i.e., wetland/drain).
2. If any impacts to the wetland buffer are proposed, the project would require a *City of Novi Authorization to Encroach the 25-Foot Wetland Setback*.
3. Please indicate the location of all proposed silt fence on the Plan and the limits of proposed disturbance. It is not clear from the Plan if both tree protection and silt fence are proposed around Wetland 6.
4. A wetland buffer restoration Plan and cost estimate shall be included in the instance that temporary wetland setback impacts are proposed. The restoration Plan shall specify the proposed native seed mix and/or plant/shrub types that will be used in these restoration areas.

Recommendation

ECT recommends conditional approval of the Preliminary Site Plan with the condition that the above comments are satisfactorily addressed.

If you have any questions regarding the contents of this letter, please contact us.

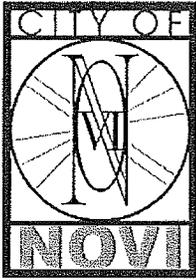
Respectfully,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Peter Hill, P.E.
Senior Associate Engineer

FIRE REVIEW



June 29, 2012

TO: Barbara McBeth, Deputy Director of Community Development
Joseph Shelton, Fire Marshal

RE: Ride & Drive Automotive Research Lot, parcel # 50-22-16-251-022

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Terry K. Margolis

Andrew Mutch

Justin Fischer

Wayne Wrobel

Laura Marie Casey

City Manager
Clay J. Pearson

**Director of Public Safety
Chief of Police**
David E. Molloy

Director of EMS/Fire Operations
Jeffery R. Johnson

Deputy Chief of Police
Thomas C. Lindberg

Assistant Chief of Police
Victor C.M. Lauria

Project Description:

Proposed addition of a new Automotive Research Lot and test track, on site (listed above). No new building(s) are proposed, only adding an outdoor auto test track and tents to lot areas.

Comments:

1. Access drive from Taft Rd to parking lot of the Suburban Collection Showplace must be maintained and free from any roadway obstructions. This is primary emergency access to existing building (2519 sq ft) on this parcel and is secondary access to the Showplace building and parking lot.

Recommendation:

The above final site plan has been reviewed and is recommended for **APPROVAL**, pending the listed item above (#1) is maintained during construction and or use for this property.

Sincerely,

Andrew Copeland – Inspector/CFPE
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 W. Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

APPLICANT RESPONSE LETTER(S)

S SUBURBAN COLLECTION
SHOWPLACE

MEMORANDUM

RECEIVED

To: Kristen Kapelanski, Planner

JUL 05 2012

From: Blair Bowman, Owner

CITY OF NOM
COMMUNITY DEVELOPMENT

Date: July 5th, 2012

Re: Response to July 2, 2012 Ride and Drive Lot SP # 12-29

First and foremost I would like to thank the City administration, staff and consultants for their swift review and response to our submitted plans. We intend to respond by way of this communication and when appearing at the required commission and council meeting during the plan review and approval process.

As from the onset of our plan request we are not proposing to provide any additional landscaping and therefore, in response to the request for a landscape plan or any calculations relating thereto, none are being provided. We respectfully indicate that while we understand the administration's and consultant's position, we are seeking city council waivers from those requirements. We feel strongly that when considered in the totality, these waivers are justified considering the existing landscaping, buffering and natural areas surrounding the proposed project site.

In specific response to your specific items, please see below:

Item # 3 Parking lot setback

- This item can be resolved either by a confirmation that the setback in fact already exists, in its existing condition or if necessary, a combination of the site with the larger showplace parcel can be completed.

Item #4 Parking Lot Striping

- As repeated indicated in our initial submittal, we will stripe the lot including painted end islands in an acceptable pattern and layout to the City. We are hereby formally requesting a City administration waiver to allow for all striping to be completed in a dark green or other acceptable muted color, versus the City's standard colors. If there are any further forms or applications necessary, please indicate so.

Item #5 please refer to opening paragraph

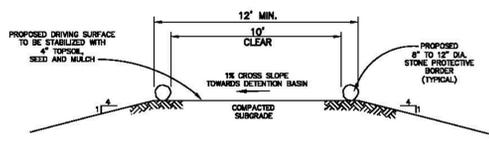
Item #6 Exterior Lighting

- It is our intention to submit with final site plan, a photometric site plan meeting City minimum standards.

Item #7 Covenants and Restrictions

- We will execute a similar C and Rest. Agreement to that of the overall showplace site along with final site plan.

Our engineer has reviewed all comments and sees no significant issues and will address all items in the final site plan submittal. Again, please accept our sincere thanks for your attention to these matters.

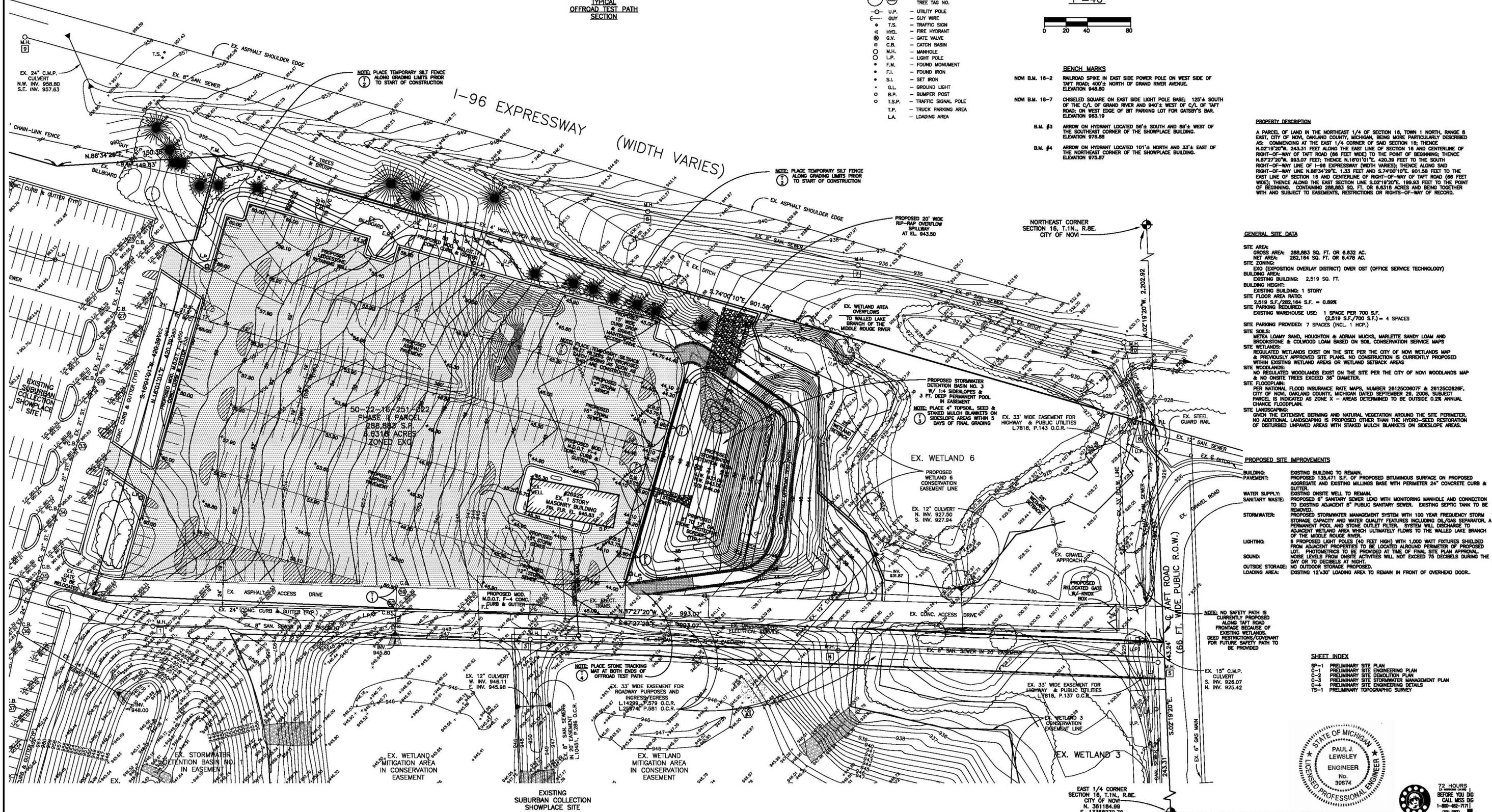
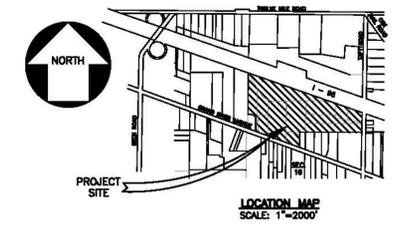


TYPICAL OFFROAD TEST PATH SECTION

- LEGEND**
- + 930.00 - EXISTING ELEVATION
 - + 30.00 - PROPOSED ELEVATION (100 800 FEET)
 - 930 --- - EXISTING CONTOUR
 - 930 --- - EXISTING CONTOUR PER PREVIOUS PLAN
 - (98) - EXISTING TREE TAG NO.
 - U.P. - UTILITY POLE
 - GUY - GUY WIRE
 - T.S. - TRAFFIC SIGN
 - HYD. - FIRE HYDRANT
 - G.V. - GATE VALVE
 - C.B. - CATCH BASIN
 - M.H. - MANHOLE
 - L.P. - LIGHT POLE
 - F.M. - FOUND MONUMENT
 - F.I. - FOUND IRON
 - S.I. - SET IRON
 - G.L. - GROUND LIGHT
 - B.P. - BUMPER POST
 - T.S.P. - TRAFFIC SIGNAL POLE
 - T.P. - TRUCK PARKING AREA
 - L.A. - LOADING AREA



SCALE
1"=40'



- BENCH MARKS**
- NOM B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80
 - NOM B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 840'± WEST OF C/L OF TAFT ROAD, ON WEST EDGE OF BT PARKING LOT FOR GATSBY'S BAR. ELEVATION 983.19
 - B.M. #3 ARROW ON HYDRANT LOCATED 58'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.66
 - B.M. #4 ARROW ON HYDRANT LOCATED 101'± NORTH AND 33'± EAST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 975.87

PROPERTY DESCRIPTION

A PARCEL OF LAND IN THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 16; THENCE N.02°19'20"W. 243.31 FEET ALONG THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE) TO THE POINT OF BEGINNING; THENCE N.87°27'20"W. 883.07 FEET; THENCE N.18°01'01"E. 420.38 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF I-96 EXPRESSWAY (WIDTH VARIES); THENCE ALONG SAID RIGHT-OF-WAY LINE N.86°34'29"E. 1.33 FEET AND S.74°00'10"E. 801.58 FEET TO THE EAST LINE OF SECTION 18 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE); THENCE ALONG THE EAST SECTION LINE S.02°19'20"E. 199.83 FEET TO THE POINT OF BEGINNING, CONTAINING 288,883 SQ. FT. OR 8.8318 ACRES AND BEING TOGETHER WITH AND SUBJECT TO EASEMENTS, RESTRICTIONS OR RIGHTS-OF-WAY OF RECORD.

GENERAL SITE DATA

SITE AREA:
GROSS AREA: 288,883 SQ. FT. OR 8.832 AC.
NET AREA: 282,184 SQ. FT. OR 8.173 AC.

SITE ZONING:
EXC (EXPOSITION OVERLAY DISTRICT) OVER OST (OFFICE SERVICE TECHNOLOGY)

BUILDING AREA:
EXISTING BUILDING: 2,519 SQ. FT.

BUILDING HEIGHT:
EXISTING BUILDING: 1 STORY

SITE FLOOR AREA RATIO:
2,519 S.F./282,184 S.F. = 0.88%

SITE PARKING REQUIRED:
EXISTING WAREHOUSE USE: 1 SPACE PER 700 S.F. (2,519 S.F./700 S.F.) = 4 SPACES

SITE PARKING PROVIDED: 7 SPACES (INCL. 1 HCP.)

SITE SOILS:
META LOAMY SAND, HOUGHTON & ADRIAN MUCKS, MARLETTE SANDY LOAM AND BROOKSTONE & COLWOOD LOAM BASED ON SOIL CONSERVATION SERVICE MAPS

SITE WETLANDS:
REGULATED WETLANDS EXIST ON THE SITE PER THE CITY OF NOVI WETLANDS MAP & PREVIOUSLY APPROVED SITE PLANS. NO CONSTRUCTION IS CURRENTLY PROPOSED WITHIN EXISTING WETLAND AREAS OR WETLAND SETBACK AREAS.

SITE WOODLANDS:
NO REGULATED WOODLANDS EXIST ON THE SITE PER THE CITY OF NOVI WOODLANDS MAP & NO ONSITE TREES EXCEED 36" DIAMETER.

SITE FLOODPLAIN:
PER NATIONAL FLOOD INSURANCE RATE MAPS, NUMBER 28125C0807F & 28125C0828F, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DATED SEPTEMBER 28, 2008, SUBJECT PARCEL IS INDICATED AS ZONE X - AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOODPLAIN.

SITE LANDSCAPING:
GIVEN THE EXTENSIVE BERRING AND NATURAL VEGETATION AROUND THE SITE PERMETER, NO ADDITIONAL LANDSCAPING IS PROPOSED OTHER THAN THE RESTORATION OF DISTURBED UNPAVED AREAS WITH STAKED MULCH BLANKETS ON SIDESLOPE AREAS.

PROPOSED SITE IMPROVEMENTS

BUILDING: EXISTING BUILDING TO REMAIN.

PAVEMENT: PROPOSED 133,471 S.F. OF PROPOSED BITUMINOUS SURFACE ON PROPOSED AGGREGATE AND EXISTING MILLINGS BASE WITH PERIMETER 24" CONCRETE CURB & GUTTER.

WATER SUPPLY: EXISTING ONSITE WELL TO REMAIN.

SANITARY WASTE: PROPOSED 8" SANITARY SEWER LEAD WITH MONITORING MANHOLE AND CONNECTION TO EXISTING ADJACENT 8" PUBLIC SANITARY SEWER. EXISTING SEPTIC TANK TO BE REMOVED.

STORMWATER: PROPOSED STORMWATER MANAGEMENT SYSTEM WITH 100 YEAR FREQUENCY STORM STORAGE CAPACITY AND WATER QUALITY FEATURES INCLUDING OIL/GAS SEPARATOR, A PERMANENT POOL AND STONE OUTLET FILTER. SYSTEM WILL DISCHARGE TO ADJACENT WETLAND AREA WHICH ULTIMATELY FLOWS TO THE WALLED LAKE BRANCH OF THE WALLED LAKE BRANCH OF THE MIDDLE ROUGE RIVER.

LIGHTING: 8 PROPOSED LIGHT POLES (40 FEET HIGH) WITH 1,000 WATT FIXTURES SHIELDED FROM ADJACENT PROPERTIES TO BE LOCATED AROUND PERIMETER OF PROPOSED LOT. PHOTOGRAPHS TO BE PROVIDED AT TIME OF FINAL SITE PLAN APPROVAL.

SOUND: NOISE LEVELS FROM ONSITE ACTIVITIES WILL NOT EXCEED 75 DECIBELS DURING THE DAY OR 70 DECIBELS AT NIGHT.

OUTSIDE STORAGE: NO OUTDOOR STORAGE PROPOSED.

LOADING AREA: EXISTING 12'x30' LOADING AREA TO REMAIN IN FRONT OF OVERHEAD DOOR.

SHEET INDEX

- SP-1 PRELIMINARY SITE PLAN
- C-1 PRELIMINARY SITE ENGINEERING PLAN
- C-2 PRELIMINARY SITE DEMOLITION PLAN
- C-3 PRELIMINARY SITE STORMWATER MANAGEMENT PLAN
- C-4 PRELIMINARY SITE ENGINEERING DETAILS
- TS-1 PRELIMINARY TOPOGRAPHIC SURVEY



72 HOURS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

CLIENT:
TBOB, LLC
45100 GRAND RIVER AVE.
NOVI, MICHIGAN 48375
PHONE: 248/348-5600

REVISIONS
REVISED 06/28/12 PER CITY REVIEW

PROPOSED
RIDE AND DRIVE AUTOMOTIVE RESEARCH LOT
IN SECTION 16

PRELIMINARY SITE ENGINEERING PLAN

Environmental engineers, Inc.
18620 WEST TEN MILE ROAD SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510 FAX: 248/424-2954

CLIENT PROJECT No. 1104 EX
DATE ISSUED 06/08/12
SHEET No. C-1

CITY OF NOVI OAKLAND COUNTY MICHIGAN

EXISTING SANITARY SEWER STRUCTURES

- 1 EX. SANITARY MANHOLE
RIM 927.83
8" INV. N.W. 947.01
8" INV. E. 945.93
- 2 EX. SANITARY MANHOLE
RIM 928.14
8" INV. N. 922.88
10" INV. S. 914.94
10" INV. N. 914.94
- 3 EX. SANITARY MANHOLE
RIM 947.75
8" INV. S. 936.82
8" INV. W. 936.79
8" INV. E. 936.79
- 4 EX. SANITARY MANHOLE
RIM 936.24
8" INV. W. 930.70
8" INV. W. 924.67
8" INV. S. 914.94
10" INV. N. 914.94
- 5 EX. SANITARY MANHOLE
RIM 923.14
8" INV. W. 924.67
8" INV. S. 914.94
10" INV. N. 914.94
- 6 EX. SANITARY MANHOLE
RIM 928.11
12" INV. E. 913.37
10" INV. S. 913.50
10" INV. N.W. 913.36
- 7 EX. SANITARY MANHOLE
RIM 934.47
FULL OF WATER
- 8 EX. SANITARY MANHOLE
RIM 941.11
FULL OF WATER
- 9 EX. SANITARY MANHOLE
RIM 951.56
FULL OF WATER
- 10 EX. SANITARY MANHOLE
RIM 923.01
8" INV. W. 919.79
8" INV. S.E. 919.79

EXISTING STORM SEWER STRUCTURES

- 23 EX. CATCH BASIN
RIM 980.74
12" INV. S.W. 956.59
12" INV. N.E. 956.14
24" INV. N.W. 951.74
24" INV. E. 950.29
- 24 EX. CATCH BASIN
RIM 981.74
12" INV. N.E. 957.94
- 25 EX. CATCH BASIN
RIM 981.74
12" INV. S.W. 966.44
- 26 EX. CATCH BASIN
RIM 959.29
12" INV. N.E. 952.54
- 27 EX. CATCH BASIN
RIM 950.72
12" INV. N.E. 956.57
- 28 EX. CATCH BASIN
RIM 950.83
12" INV. S.W. 955.83
24" INV. N.E. 952.88
24" INV. S.E. 949.08
- 29 EX. CATCH BASIN
RIM 950.53
21" INV. N.E. 953.43
24" INV. S.W. 953.23
- 30 EX. CATCH BASIN
RIM 950.65
21" INV. N.E. 953.90
21" INV. S.W. 953.90
- 31 EX. CATCH BASIN
RIM 980.83
21" INV. N.E. 954.43
21" INV. S.W. 954.43
- 32 EX. CATCH BASIN
RIM 980.78
12" INV. N.E. 955.38
21" INV. S.W. 955.08
- 33 EX. CATCH BASIN
RIM 980.67
12" INV. N.E. 956.12
12" INV. N.W. 956.22
21" INV. S.W. 955.72
- 34 EX. CATCH BASIN
RIM 950.68
12" INV. S.W. 956.68
- 35 EX. CATCH BASIN
RIM 950.48
12" INV. S. 946.10
- 36 EX. CATCH BASIN
RIM 950.56
12" INV. N. 946.10
12" INV. S. 946.10
- 37 EX. CATCH BASIN
RIM 959.29
12" INV. N.E. 952.54
- 38 EX. OUTLET STRUCTURE
RIM 957.08
8" INV. E. 947.06
- 39 EX. OUTLET STRUCTURE
RIM 948.88
12" INV. N.E. 934.98

LEGEND

- +930.00 - EXISTING ELEVATION
- +30.00 - PROPOSED ELEVATION (ADD 900 FEET)
- 930 - EXISTING CONTOUR
- 930 - EXISTING CONTOUR PER PREVIOUS PLAN
- (M) - EXISTING TREE TAG NO.
- U.P. - UTILITY POLE
- GUY - GUY WIRE
- T.S. - TRAFFIC SIGN
- HYD. - FIRE HYDRANT
- G.V. - GATE VALVE
- C.B. - CATCH BASIN
- M.H. - MANHOLE
- L.P. - LIGHT POLE
- F.M. - FOUND MONUMENT
- F.I. - FOUND IRON
- S.I. - SET IRON
- G.L. - GROUND LIGHT
- B.P. - BUMPER POST
- T.S.P. - TRAFFIC SIGNAL POLE
- T.P. - TRUCK PARKING AREA
- L.A. - LOADING AREA
- (X) - EXISTING TREE TO BE REMOVED



SCALE
1" = 40'



BENCH MARKS

- NOV. B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400' NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80
- NOV. B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125' SOUTH OF THE C/L OF GRAND RIVER AND 840' WEST OF C/L OF TAFT ROAD ON WEST EDGE OF BIT PARKING LOT FOR CATSPO'S BAR. ELEVATION 976.88
- B.M. #3 ARROW ON HYDRANT LOCATED 56' SOUTH AND 80' WEST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.88
- B.M. #4 ARROW ON HYDRANT LOCATED 101' NORTH AND 33' EAST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 975.87

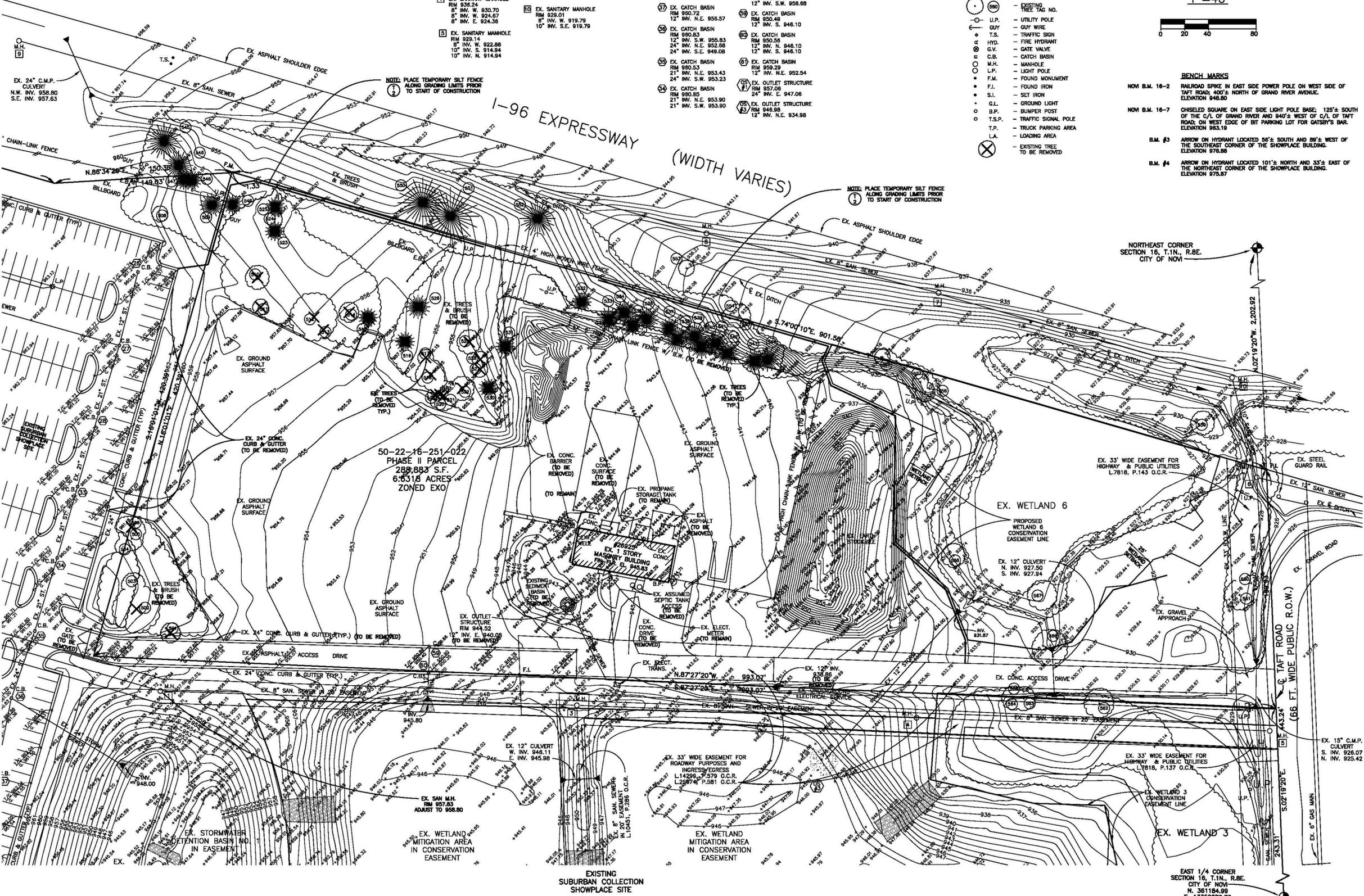


PROPERTY DESCRIPTION

A PARCEL OF LAND IN THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 16; THENCE N. 02°19'20"W. 243.31 FEET ALONG THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE) TO THE POINT OF BEGINNING; THENCE N. 87°27'20"W. 993.07 FEET; THENCE N. 16°01'01"E. 420.39 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF I-96 EXPRESSWAY (WIDTH VARIES); THENCE ALONG SAID RIGHT-OF-WAY LINE N. 86°34'28"E. 1.33 FEET AND S. 74°00'10"E. 901.58 FEET TO THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE); THENCE ALONG THE EAST SECTION LINE S. 02°19'20"E. 199.83 FEET TO THE POINT OF BEGINNING, CONTAINING 286,883 SQ. FT. OR 6.6318 ACRES AND BEING TOGETHER WITH AND SUBJECT TO EASEMENTS, RESTRICTIONS OR RIGHTS-OF-WAY OF RECORD.

EXISTING TREE INFORMATION

TAG NO.	SIZE	SPECIES	SPL. NAME	ELEVATION
501	12"	ELM	PRUNUS	960.97
502	28"	CHERRY	PRUNUS	962.01
503	14"	MAPLE	ACER	963.39
504	10"	POPULAR	POPULUS	962.88
505	15"	CHERRY	PRUNUS	962.45
506	18"	CHERRY	PRUNUS	961.33
507	12" x 10"	CHERRY	PRUNUS	964.53
508	12" x 10"	POPULAR	POPULUS	966.94
509	12"	AUSTRIAN PINE	PMUS NIGRA	957.36
510	15"	MAPLE	ACER	968.03
511	10"	CHERRY	PRUNUS	958.39
512	23"	ASH	FRAXINUS	957.08
513	10"	ASH	FRAXINUS	957.59
514	12"	ELM	ULMUS	958.32
515	10"	AUSTRIAN PINE	PMUS NIGRA	958.74
516	10"	AUSTRIAN PINE	PMUS NIGRA	958.05
517	10"	MAPLE	ACER	958.15
518	18"	CHERRY	PRUNUS	956.65
519	10"	CHERRY	PRUNUS	958.99
520	15"	ELM	ULMUS	956.79
521	18"	CHERRY	PRUNUS	955.74
522	15"	MAPLE	ACER	956.40
523	10"	AUSTRIAN PINE	PMUS NIGRA	955.30
524	10"	AUSTRIAN PINE	PMUS NIGRA	958.47
525	10"	AUSTRIAN PINE	PMUS NIGRA	958.47
526	12"	AUSTRIAN PINE	PMUS NIGRA	957.35
527	10"	MAPLE	ACER	954.78
528	10"	MAPLE	ACER	954.06
529	15" x 10"	ASH	FRAXINUS	954.05
530	10"	AUSTRIAN PINE	PMUS NIGRA	954.64
531	10"	AUSTRIAN PINE	PMUS NIGRA	948.28
532	10"	AUSTRIAN PINE	PMUS NIGRA	948.28
533	12"	AUSTRIAN PINE	PMUS NIGRA	945.81
534	12"	AUSTRIAN PINE	PMUS NIGRA	946.74
535	10"	AUSTRIAN PINE	PMUS NIGRA	945.87
536	12"	AUSTRIAN PINE	PMUS NIGRA	945.97
537	10"	AUSTRIAN PINE	PMUS NIGRA	945.23
538	15"	AUSTRIAN PINE	PMUS NIGRA	944.34
539	10"	AUSTRIAN PINE	PMUS NIGRA	945.80
540	12"	AUSTRIAN PINE	PMUS NIGRA	943.39
541	12"	AUSTRIAN PINE	PMUS NIGRA	943.67
542	12"	AUSTRIAN PINE	PMUS NIGRA	943.01
543	12"	AUSTRIAN PINE	PMUS NIGRA	943.29
544	12"	AUSTRIAN PINE	PMUS NIGRA	941.12
545	18"	CHERRY	PRUNUS	959.38
546	15"	AUSTRIAN PINE	PMUS NIGRA	959.97
547	10"	AUSTRIAN PINE	PMUS NIGRA	958.41
548	10"	AUSTRIAN PINE	PMUS NIGRA	958.57
549	10"	AUSTRIAN PINE	PMUS NIGRA	957.66
550	27"	AUSTRIAN PINE	PMUS NIGRA	956.14
551	27"	AUSTRIAN PINE	PMUS NIGRA	955.81
552	18"	AUSTRIAN PINE	PMUS NIGRA	948.35
553	10"	POPULAR	POPULUS	938.05
554	10"	POPULAR	POPULUS	933.30
555	15"	POPULAR	POPULUS	933.88
556	10"	POPULAR	POPULUS	927.51
557	10"	POPULAR	POPULUS	927.72
558	12"	ELM	ULMUS	927.70
559	15"	POPULAR	POPULUS	928.71
560	10"	POPULAR	POPULUS	927.44
561	18"	WILLOW	SALIX	928.96
562	18"	POPULAR	POPULUS	930.10
563	15"	POPULAR	POPULUS	928.74
564	10"	POPULAR	POPULUS	930.18
565	15"	POPULAR	POPULUS	930.29
566	21"	POPULAR	POPULUS	929.50
567	18"	POPULAR	POPULUS	927.47
568	15"	POPULAR	POPULUS	928.74



CLIENT: TBOB, LLC
45100 GRAND RIVER AVE.
NOVI, MICHIGAN 48375
PHONE: 248/348-5600

REVISIONS: REVISED 06/28/12 PER CITY REVIEW

PROPOSED
RIDE AND DRIVE AUTOMOTIVE RESEARCH LOT
IN SECTION 16
OAKLAND COUNTY

PRELIMINARY SITE DEMOLITION PLAN
Environmental engineers, Inc.
18620 WEST TOWN ROAD SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510 FAX: 248/424-2954

CLIENT PROJECT No. 1104 EX
DATE ISSUED 06/08/12 SHEET No. C-2



72 HOURS BEFORE YOU DIG
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1-800-482-7771
TOL. FREE

SITE STORMWATER DISCHARGE ANALYSIS

EXISTING 100 YR. STORM DISCHARGE RATE FROM PROPOSED DEVELOPMENT AREA TO ADJACENT WETLAND #6:
 $Q = AC \times C$
 $4.31 \text{ AC} \times 0.50 \times 0.25 = 13.17 \text{ CFS}$

PROPOSED 100 YR. STORM DISCHARGE RATE FROM PROPOSED DEVELOPMENT AREA TO ADJACENT WETLAND #6:
 $4.31 \text{ AC} \times 0.15 \text{ CFS/AC} = 0.65 \text{ CFS}$

PROPOSED DISCHARGE RATE REDUCTION = 95%

EXISTING 100 YR. STORM DISCHARGE VOLUME FROM PROPOSED DEVELOPMENT AREA TO ADJACENT WETLAND #6:
 $V = 16,500 \text{ A.C.}$
 $16,500 \times 4.31 \text{ AC} \times 0.50 = 35,598 \text{ CU. FT.}$

PROPOSED 100 YR. STORM DISCHARGE VOLUME FROM PROPOSED DEVELOPMENT AREA TO ADJACENT WETLAND #6:
 $16,500 \times 4.31 \text{ AC} \times 0.15 = 80,448 \text{ CU. FT.}$

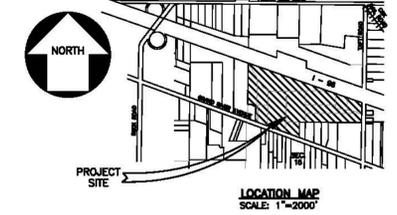
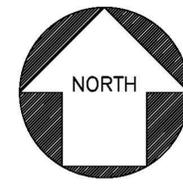
PROPOSED DISCHARGE VOLUME INCREASE = 70% HOWEVER, 24,950 CU. FT. VOLUME INCREASE WILL BE STORED IN DETENTION BASIN, RELEASED TO WETLAND #6 OVER A 486 HOUR TIME PERIOD AND WILL RESULT IN A 9" MAXIMUM RISE IN WETLAND #6 WATER LEVEL.

From M.H. #	To M.H. #	Increment D.P.#	Equivalent Area "A"	Total Area 100% Acres CA	T Time Mts.	I Inches per hour	O c.f.a.	Diameter of pipe ft.	Slope pipe ft./ft.	Slope H.G.	Length of the ft.	Velocity flow ft./sec.	Time of flow min.	Capacity of sewer c.f.a. (ft.)	H.G. station upper end	H.G. station lower end	Invert elevation upper end	Invert elevation lower end
N.L. #70	C.B. #71	0.88	0.90	0.59	20.00	3.69	2.30	12"	0.0090	0.0041	8	3.2	0.04	2.5	940.28	943.75	943.75	939.71
C.B. #71	C.B. #72	0.68	0.90	0.59	1.18	20.04	3.89	2.29	0.0090	0.0050	58	4.7	0.21	5.8	940.24	943.75	943.75	939.51
C.B. #72	C.B. #73	0.68	0.90	0.61	0.61	20.00	3.89	2.37	0.0090	0.0044	8	3.2	0.04	2.5	940.30	943.75	943.75	939.71
C.B. #73	C.B. #74	0.88	0.90	0.61	1.22	20.04	3.89	2.44	0.0090	0.0054	58	4.7	0.21	5.8	940.28	943.75	943.75	939.51
C.B. #74	C.B. #75	0.70	0.90	0.63	3.03	20.25	3.69	11.73	0.0150	0.0124	46	7.3	0.11	12.9	939.95	943.75	943.75	937.00

NOTE: TYPICAL CATCH BASIN COVER (E.I.W. #5105 W/ M1 GRATE) HAS 225 SQ. IN. OPENING AND 2.5 CFS INLET CAPACITY BASED ON 0.011 CFS/ SQ. IN.

Environmental engineers, Inc.
 Design for Storm Sewer Systems

Project: **RIDE AND DRIVE AUTO RESEARCH**
 Project No. **1104 EX**
 Date: **06/28/12** By: **PAUL LEWISLEY**



LEGEND

- + 30.00 - EXISTING ELEVATION
- 30.00 - PROPOSED ELEVATION (ADD 900 FEET)
- 930 - EXISTING CONTOUR
- 930 - EXISTING CONTOUR PER PREVIOUS PLAN
- (50) - EXISTING TREE TAG NO.
- U.P. - UTILITY POLE
- GUY - GUY WIRE
- T.S. - TRAFFIC SIGN
- HYD. - FIRE HYDRANT
- G.V. - GATE VALVE
- C.B. - CATCH BASIN
- M.H. - MANHOLE
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- F.I. - FOUND IRON
- S.I. - SET IRON
- G.L. - GROUND LIGHT
- B.P. - BUMPER POST
- T.S.P. - TRAFFIC SIGNAL POLE
- T.P. - TRUCK PARKING AREA
- L.A. - LOADING AREA
- --- - DRAINAGE AREA BOUNDARY

BENCH MARKS

- NOV B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80
- NOV B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 840'± WEST OF C/L OF TAFT ROAD ON WEST EDGE OF BIT PARKING LOT FOR GATSDY'S BAR. ELEVATION 983.19
- B.M. #3 ARROW ON HYDRANT LOCATED 56'± SOUTH AND 80'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.86
- B.M. #4 ARROW ON HYDRANT LOCATED 101'± NORTH AND 33'± EAST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 975.87

DETENTION VOLUME REQUIRED

USE OAKLAND COUNTY DRAIN COMMISSIONERS FORMULA TO DETERMINE REQUIRED DETENTION VOLUME FOR 100 YR. STORM PER CITY OF NOVI STORMWATER MANAGEMENT ORDINANCE. CALCULATE FIRST FLUSH & BANK FULL VOLUMES BASED ON CITY OF NOVI STORMWATER MANAGEMENT ORDINANCE FORMULAS.

WEIGHTED COEFFICIENT = $3.45 \text{ AC}(0.95) + 0.75 \text{ AC}(0.35) + 0.11(1.00) = 0.85$
 4.31 AC. TOTAL TRIBUTARY AREA

$Q = \frac{A \times C}{3600}$ WHERE: Q = (ACREAGE)(0.15 CFS/AC)

$Q = \frac{(4.31 \text{ AC})(0.15 \text{ CFS/AC})}{3600} = 0.1785$

$T_d = -25 + \sqrt{\frac{10.3122}{T + 25}}$

$T_d = -25 + \sqrt{\frac{10.3122}{0.1785}} = 217 \text{ MIN.}$

$V_d = \frac{18,500(T_d)^2}{40(Q)(T_d)}$

$V_d = \frac{18,500(217)^2}{40(0.1785)(217)} = 13,263 \text{ C.F./AC. MP.}$

$V_d = V_d (\text{ACREAGE})(\text{RUNOFF COEFFICIENT})$

$V_d = (13,263)(4.31)(0.85) = 48,588 \text{ CU. FT. REQUIRED FOR 100 YR. STORM}$

FIRST FLUSH VOLUME REQUIRED

$V_f = 1.81(\text{ACREAGE})(\text{RUNOFF COEFFICIENT})$

$V_f = 1.81(4.31)(0.85) = 6,849 \text{ CU. FT. REQUIRED}$

BANK FULL VOLUME REQUIRED

$V_b = 0.180(\text{ACREAGE})(\text{RUNOFF COEFFICIENT})$

$V_b = 0.180(4.31)(0.85) = 3,893 \text{ CU. FT. REQUIRED}$

DETENTION VOLUME PROVIDED

PERMANENT POOL

CONTOUR	AREA BELOW CONTOUR	AVERAGE DEPTH	VOLUME BETWEEN CONTOURS	CUMULATIVE VOLUME
937.0 (L.W.)	4,400 S.F.	1.833 S.F. x 0.00 FT.	15,148 C.F.	2,708 C.F.
936.0	2,245 S.F.	3,580 S.F. x 1.00 FT.	3,580 C.F.	6,886 C.F.
935.0 (L.W.)	4,803 S.F.	3,580 S.F. x 1.00 FT.	3,580 C.F.	6,886 C.F.

PROPOSED PERMANENT POOL VOLUME PROVIDED = 8,888 C.F.

DETENTION BASIN

CONTOUR	AREA BELOW CONTOUR	AVERAGE DEPTH	VOLUME BETWEEN CONTOURS	CUMULATIVE VOLUME	F.F. EL.
937.0 (L.W.)	4,400 S.F.	5,298 S.F. x 1.00 FT.	5,298 C.F.	5,298 C.F.	938.18
936.0	2,245 S.F.	7,574 S.F. x 2.00 FT.	15,148 C.F.	20,446 C.F.	939.84
935.0 (L.W.)	4,803 S.F.	10,838 S.F. x 2.00 FT.	21,676 C.F.	42,122 C.F.	941.50
934.0 (H.W.)	14,842 S.F.	13,676 S.F. x 1.00 FT.	13,676 C.F.	55,798 C.F.	942.76

DETENTION BASIN VOLUME PROVIDED = 55,894 C.F.

FIRST FLUSH ORIFICE DESIGN CALCULATIONS

ORIFICE = $0.82 \sqrt{2gh}$ WHERE: Q = 6,849 C.F./86,400 SEC.
 AFF = 0.08
 ORIFICE = $0.82 \sqrt{2(32.2)(0.79)}$ AFF = 32.2 FT./SEC.
 ORIFICE = 0.0181 S.F.
 USE 3-1" DIA. ORIFICE HOLES (0.0184 S.F.) AT EL. 937.00

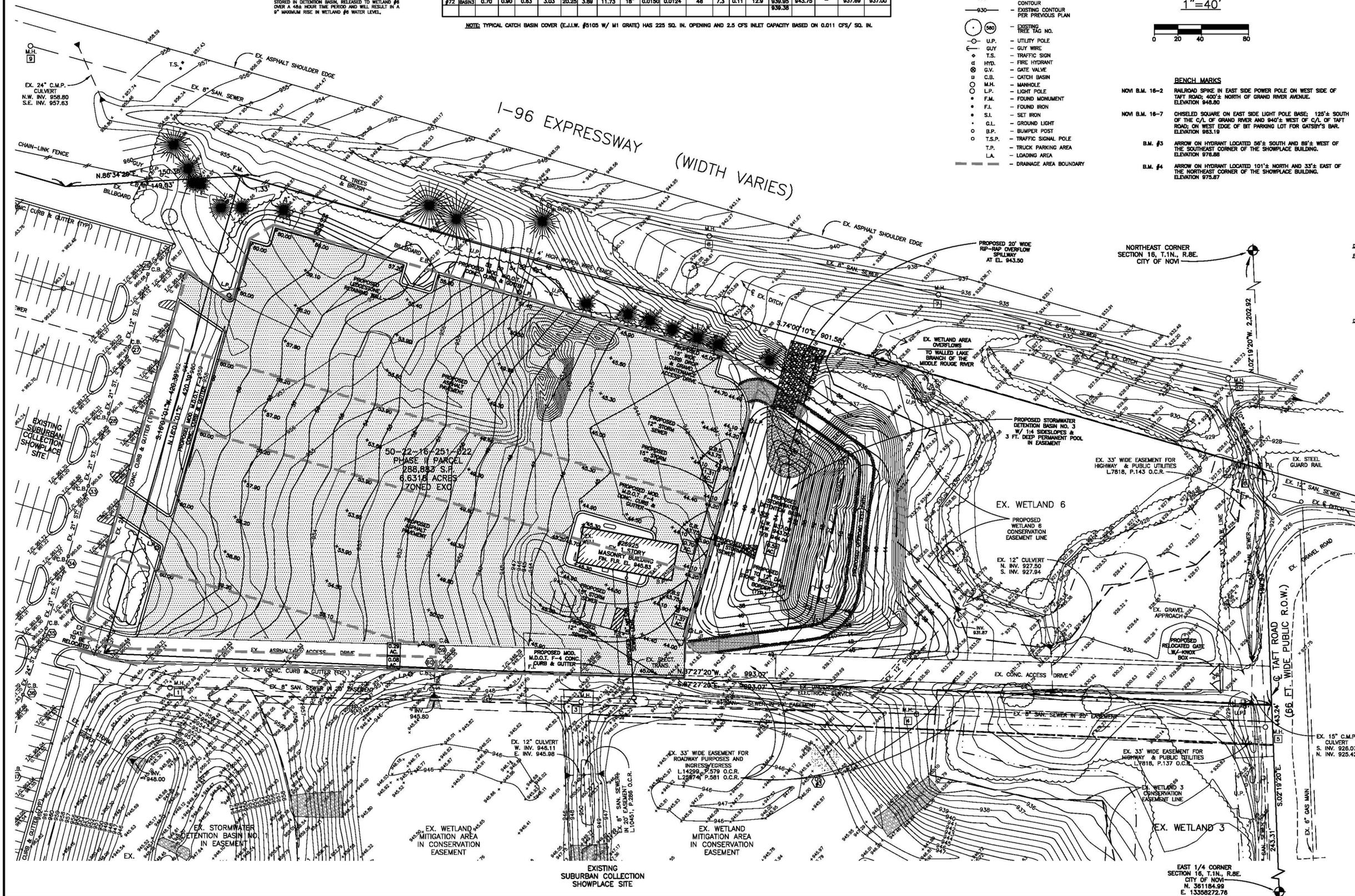
BANK FULL ORIFICE DESIGN

$Q_{FF} = (0.82)(A_{FF})\sqrt{2gh}$ WHERE: AFF = FIRST FLUSH ORIFICE AREA
 $Q_{FF} = (0.82)(0.0184)\sqrt{2(32.2)(3.46)}$ AFF = 0.0184 S.F.
 $Q_{FF} = 0.1192 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $T_{FF} = \frac{V_{FF}}{Q_{FF}}$ BANKFULL VOLUME
 $T_{FF} = \frac{18,903}{0.1192} = 158,500 \text{ SEC.} = 44 \text{ HRS.}$
 WHERE: V_{FF} = 36 (3600) (0.1122) = 14,541 C.F.
 V_{FF} = 36 (3600) (0.1122) = 14,541 C.F.
 V_{FF} = 18,903 C.F. - 14,541 C.F. = 4,362 C.F.
 T_{FF} = 36 HRS. TOTAL - 24 HRS. FIRST FLUSH = 12 HRS.

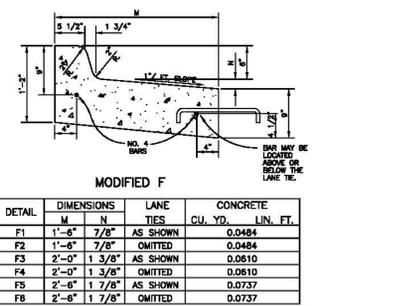
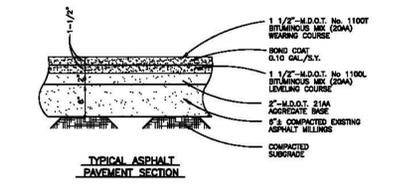
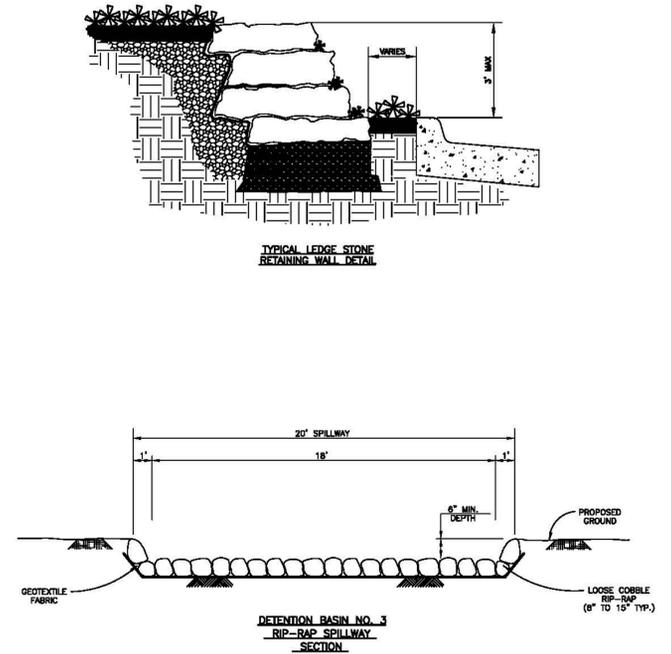
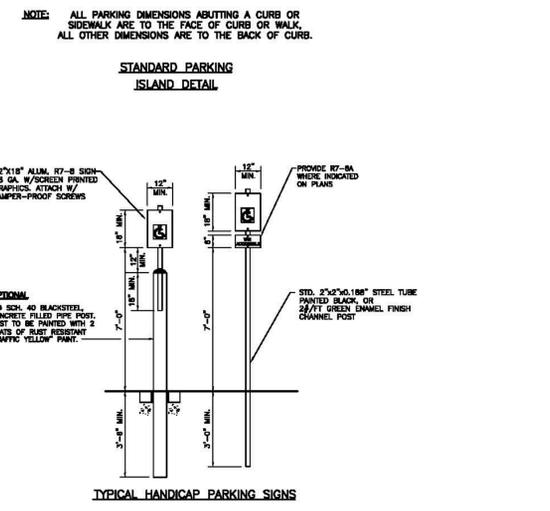
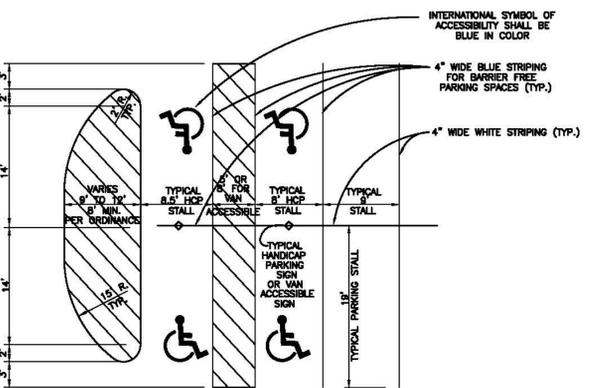
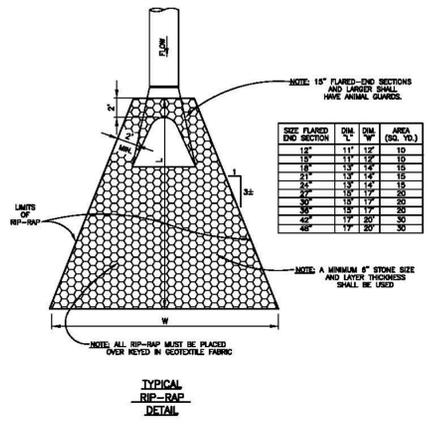
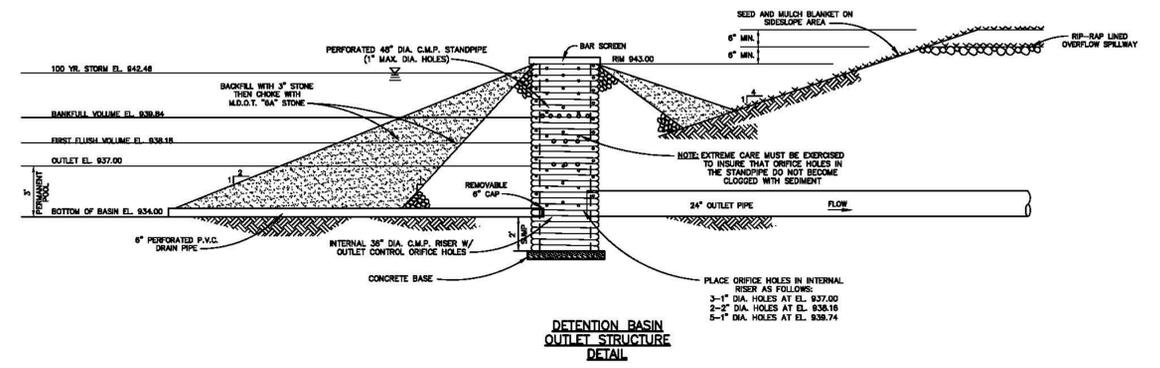
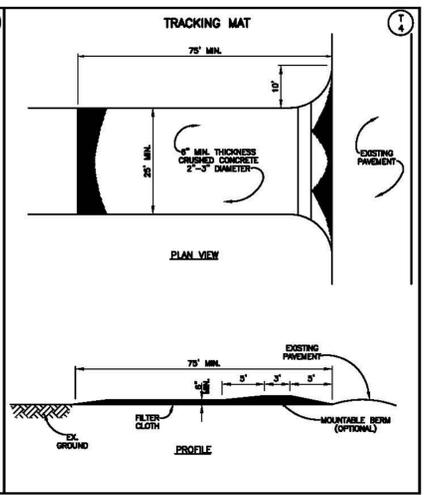
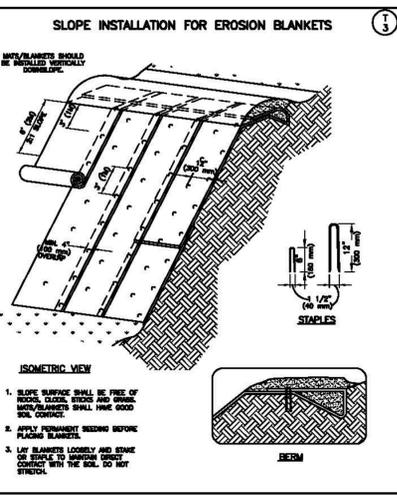
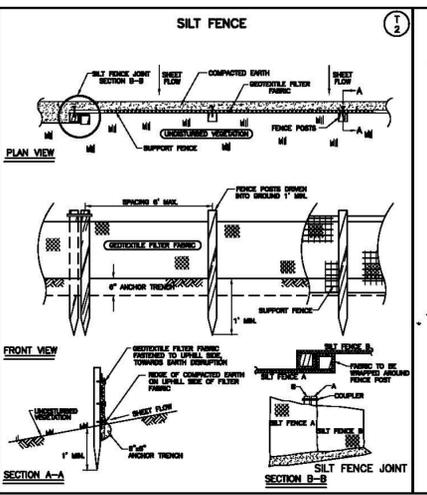
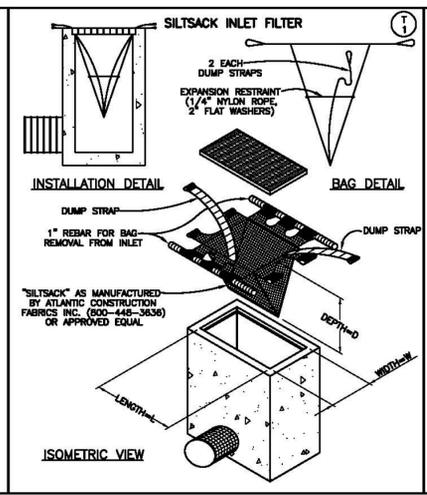
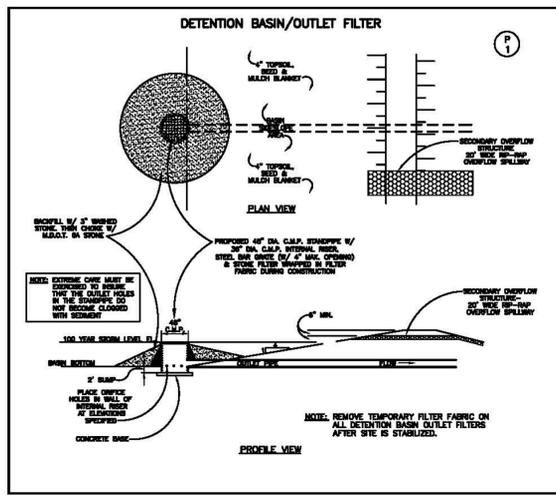
ORIFICE = 0.62 \sqrt{2gh} WHERE: Q = 18,903 C.F./43,200 SEC.
 AFF = 0.24 C.F.S.
 ORIFICE = $0.62 \sqrt{2(32.2)(1.05)}$ AFF = 32.2 FT./SEC.
 ORIFICE = 0.0191 S.F.
 USE 3-1" DIA. ORIFICE HOLES (0.0184 S.F.) AT EL. 938.18

100 YEAR STORM ORIFICE DESIGN

$Q_{FF} = (0.82)(A_{FF})\sqrt{2gh}$ WHERE: AFF = FIRST FLUSH ORIFICE AREA
 $Q_{FF} = (0.82)(0.0184)\sqrt{2(32.2)(3.46)}$ AFF = 0.0184 S.F.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(A_{FF})\sqrt{2gh}$ WHERE: Q = 18,903 C.F./43,200 SEC.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(0.0184)\sqrt{2(32.2)(3.46)}$ AFF = 0.0184 S.F.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(A_{FF})\sqrt{2gh}$ WHERE: Q = 18,903 C.F./43,200 SEC.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(0.0184)\sqrt{2(32.2)(3.46)}$ AFF = 0.0184 S.F.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(A_{FF})\sqrt{2gh}$ WHERE: Q = 18,903 C.F./43,200 SEC.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.
 $Q_{FF} = (0.82)(0.0184)\sqrt{2(32.2)(3.46)}$ AFF = 0.0184 S.F.
 $Q_{FF} = 0.1907 \text{ C.F.S.}$ AFF = 32.2 FT./SEC.

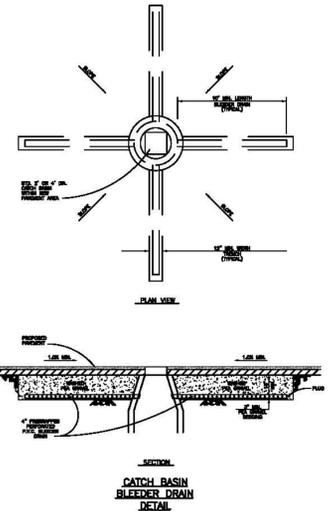


STATE OF MICHIGAN
 PAUL J. LEWISLEY
 LICENSED PROFESSIONAL ENGINEER
 No. 398574

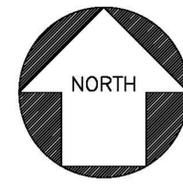


MODIFIED F

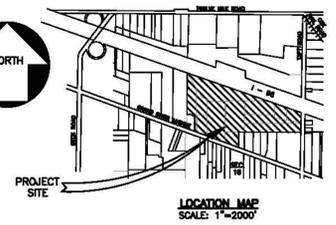
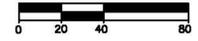
DETAIL	DIMENSIONS	LANE TIES	CONCRETE CU. YD.	LINE FT.
F1	1'-6" x 7/8"	AS SHOWN	0.0484	
F2	1'-6" x 7/8"	OMITTED	0.0484	
F3	2'-0" x 1 3/8"	AS SHOWN	0.0610	
F4	2'-0" x 1 3/8"	OMITTED	0.0610	
F5	2'-6" x 1 7/8"	AS SHOWN	0.0737	
F6	2'-6" x 1 7/8"	OMITTED	0.0737	



72 HOURS BEFORE YOU DIG CALL MISS DIG 1-800-488-7771 (CALL FREE)



SCALE
1"=40'



LEGEND

- 300.00 — EXISTING ELEVATION
- + 30.00 — PROPOSED ELEVATION (ADD 900 FEET)
- 930 — EXISTING CONTOUR
- - - 930 — EXISTING CONTOUR PER PREVIOUS PLAN
- (90) — EXISTING TREE TAG NO.
- — U.P. — UTILITY POLE
- — GUY — GUY WIRE
- ⊕ — T.S. — TRAFFIC SIGN
- ⊕ — HYD. — FIRE HYDRANT
- ⊕ — G.V. — GATE VALVE
- ⊕ — C.B. — CATCH BASIN
- ⊕ — M.H. — MANHOLE
- ⊕ — L.P. — LIGHT POLE
- ⊕ — F.M. — FOUND MONUMENT
- ⊕ — F.I. — FOUND IRON
- ⊕ — S.I. — SET IRON
- ⊕ — G.L. — GROUND LIGHT
- ⊕ — B.P. — BUMPER POST
- ⊕ — T.S.P. — TRAFFIC SIGNAL POLE
- ⊕ — T.P. — TRUCK PARKING AREA
- ⊕ — L.A. — LOADING AREA

BENCH MARKS

- NOV B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80
- NOV B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S B&B. ELEVATION 976.86
- B.M. #3 ARROW ON HYDRANT LOCATED 58'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.86
- B.M. #4 ARROW ON HYDRANT LOCATED 101'± NORTH AND 33'± EAST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.87

PROPERTY DESCRIPTION

A PARCEL OF LAND IN THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 16; THENCE N.02°19'20"W. 243.31 FEET ALONG THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (88 FEET WIDE) TO THE POINT OF BEGINNING; THENCE N.67°22'20"W. 983.07 FEET; THENCE N.18°01'01"E. 420.30 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF I-96 EXPRESSWAY (WIDTH VARIES); THENCE ALONG SAID RIGHT-OF-WAY LINE N.88°34'28"E. 1.33 FEET AND S.74°00'10"E. 901.58 FEET TO THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (88 FEET WIDE); THENCE ALONG THE EAST SECTION LINE S.02°19'20"E. 188.83 FEET TO THE POINT OF BEGINNING. CONTAINING 288,883 SQ. FT. OR 6.6318 ACRES AND BEING TOGETHER WITH AND SUBJECT TO EASEMENTS, RESTRICTIONS OR RIGHTS-OF-WAY OF RECORD.

GENERAL SITE DATA

SITE AREA:
GROSS AREA: 288,883 SQ. FT. OR 6.632 AC.
NET AREA: 282,164 SQ. FT. OR 6.478 AC.

SITE ZONING:
EXO (EXPOSITION OVERLAY DISTRICT) OVER OST (OFFICE SERVICE TECHNOLOGY)

BUILDING AREA:
EXISTING BUILDING: 2,519 SQ. FT.

BUILDING HEIGHT:
EXISTING BUILDING: 1 STORY

SITE FLOOR AREA RATIO:
2,519 S.F./282,164 S.F. = 0.89%

SITE PARKING REQUIRED:
EXISTING WAREHOUSE USE: 1 SPACE PER 700 S.F. (2,519 S.F./700 S.F. = 4 SPACES)

SITE PARKING PROVIDED: 7 SPACES (INCL. 1 HCP.)

SITE SOILS:
META LOAMY SAND, HOUGHTON & ADRIAN MUCKS, MARLETTE SANDY LOAM AND BROOKSTONE & COLWOOD LOAM BASED ON SOIL CONSERVATION SERVICE MAPS

SITE WETLANDS:
REGULATED WETLANDS EXIST ON THE SITE PER THE CITY OF NOVI WETLANDS MAP & PREVIOUSLY APPROVED SITE PLANS. NO CONSTRUCTION IS CURRENTLY PROPOSED WITHIN EXISTING WETLAND AREAS OR WETLAND SETBACK AREAS

SITE WOODLANDS:
NO REGULATED WOODLANDS EXIST ON THE SITE PER THE CITY OF NOVI WOODLANDS MAP & NO ONSITE TREES EXCEED 36" DIAMETER.

SITE FLOODPLAIN:
PER NATIONAL FLOOD INSURANCE RATE MAPS, NUMBER 28125C08077 & 28125C0826F, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DATED SEPTEMBER 29, 2006, SUBJECT PARCEL IS INDICATED AS ZONE X - AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOODPLAIN.

SITE LANDSCAPING:
GIVEN THE EXTENSIVE BERMING AND NATURAL VEGETATION AROUND THE SITE PERIMETER, NO ADDITIONAL LANDSCAPING IS PROPOSED OTHER THAN THE HYDRO-SEED RESTORATION OF DISTURBED UNPAVED AREAS WITH STAKED MULCH BLANKETS ON SIDESLOPE AREAS.

PROPOSED SITE IMPROVEMENTS

BUILDING: EXISTING BUILDING TO REMAIN.

PAVEMENT: PROPOSED 135,471 S.F. OF PROPOSED BITUMINOUS SURFACE ON PROPOSED AGGREGATE AND EXISTING MILLINGS BASE WITH PERIMETER 24" CONCRETE CURB & GUTTER.

WATER SUPPLY: EXISTING ONSITE WELL TO REMAIN.

SANITARY WASTE: PROPOSED 8" SANITARY SEWER LEAD WITH MONITORING MANHOLE AND CONNECTION TO EXISTING ADJACENT 8" PUBLIC SANITARY SEWER. EXISTING SEPTIC TANK TO BE REMOVED.

STORMWATER: PROPOSED STORMWATER MANAGEMENT SYSTEM WITH 100 YEAR FREQUENCY STORM STORAGE CAPACITY AND WATER QUALITY FEATURES INCLUDING OIL/GAS SEPARATOR, A PERMANENT POOL AND STONE OUTLET FILTER. SYSTEM WILL DISCHARGE TO ADJACENT WETLAND AREA WHICH ULTIMATELY FLOWS TO THE WALLED LAKE BRANCH OF THE MIDDLE ROUGE RIVER.

LIGHTING: 6 PROPOSED LIGHT POLES (40 FEET HIGH) WITH 1,000 WATT FIXTURES SHIELDED FROM ADJACENT PROPERTIES TO BE LOCATED AROUND PERIMETER OF PROPOSED LOT. PHOTOMETRICS TO BE PROVIDED AT TIME OF FINAL SITE PLAN APPROVAL.

NOISE LEVELS FROM ONSITE ACTIVITIES WILL NOT EXCEED 75 DECIBELS DURING THE DAY OR 70 DECIBELS AT NIGHT.

OUTSIDE STORAGE: NO OUTDOOR STORAGE PROPOSED.

LOADING AREA: EXISTING 12x30' LOADING AREA TO REMAIN IN FRONT OF OVERHEAD DOOR.

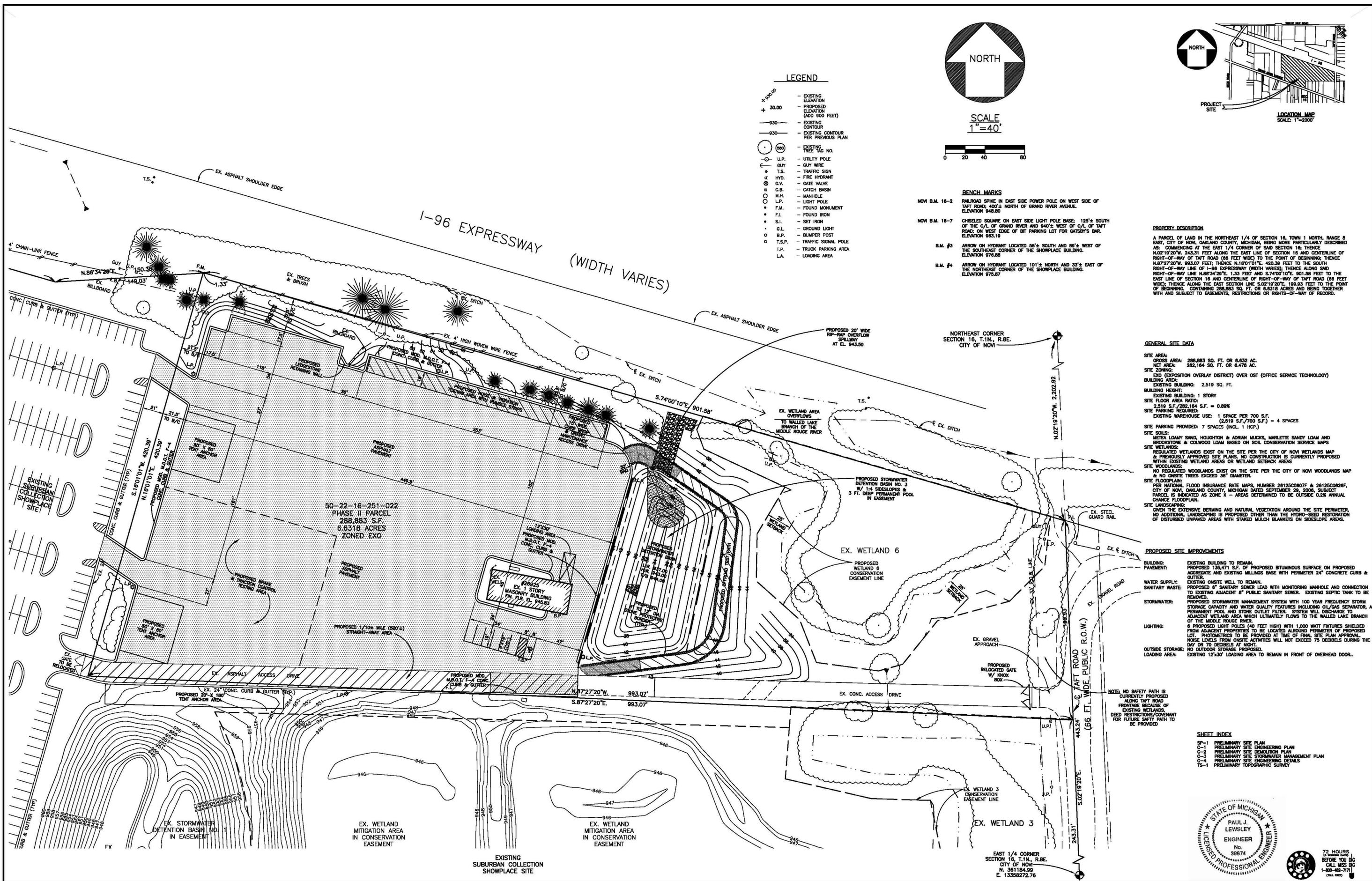
NOTE: NO SAFETY PATH IS CURRENTLY PROPOSED ALONG TAFT ROAD FRONTAGE BECAUSE OF EXISTING WETLANDS. DEED RESTRICTIONS/COVENANT FOR FUTURE SAFETY PATH TO BE PROVIDED.

SHEET INDEX

- SP-1 PRELIMINARY SITE PLAN
- C-1 PRELIMINARY SITE ENGINEERING PLAN
- C-2 PRELIMINARY SITE DEMOLITION PLAN
- C-3 PRELIMINARY SITE STORMWATER MANAGEMENT PLAN
- C-4 PRELIMINARY SITE ENGINEERING DETAILS
- TS-1 PRELIMINARY TOPOGRAPHIC SURVEY



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CLIENT:
TBOH, LLC
45100 GRAND RIVER AVE.
NOVI, MICHIGAN 48375
PHONE: 248/348-5600

REVISIONS
REVISED 06/28/12 PER CITY REVIEW

PROPOSED
RIDE AND DRIVE AUTOMOTIVE RESEARCH LOT
IN SECTION 16
OAKLAND COUNTY
MICHIGAN

PRELIMINARY SITE PLAN
Environmental Engineers, Inc.
18620 WEST TEN MILE ROAD SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510 FAX: 248/424-2954

CLIENT PROJECT No. 1104 EX
PROJECT No. 1104 EX
DATE ISSUED 06/08/12
SHEET No. SP-1

EXISTING SANITARY SEWER STRUCTURES

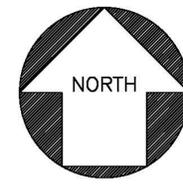
- 1 EX. SANITARY MANHOLE
RIM 927.83
8" INV. N.W. 947.01
8" INV. E. 946.93
- 2 EX. SANITARY MANHOLE
RIM 929.14
8" INV. W. 922.88
10" INV. S. 914.94
10" INV. N. 914.94
- 3 EX. SANITARY MANHOLE
RIM 947.73
8" INV. S. 936.82
8" INV. W. 936.79
8" INV. E. 936.79
- 4 EX. SANITARY MANHOLE
RIM 936.24
8" INV. W. 930.70
8" INV. N. 924.67
8" INV. E. 924.36
- 5 EX. SANITARY MANHOLE
RIM 929.14
8" INV. W. 930.70
8" INV. N. 924.67
8" INV. E. 924.36
- 6 EX. SANITARY MANHOLE
RIM 928.10
12" INV. E. 913.37
10" INV. S. 913.36
10" INV. N.W. 913.36
- 7 EX. SANITARY MANHOLE
RIM 934.47
FULL OF WATER
- 8 EX. SANITARY MANHOLE
RIM 941.11
FULL OF WATER
- 9 EX. SANITARY MANHOLE
RIM 961.56
FULL OF WATER
- 10 EX. SANITARY MANHOLE
RIM 928.01
8" INV. W. 919.79
10" INV. S.E. 919.79

EXISTING STORM SEWER STRUCTURES

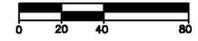
- 23 EX. CATCH BASIN
RIM 950.74
12" INV. S.W. 956.59
12" INV. N.E. 956.14
24" INV. N.W. 951.74
24" INV. E. 950.29
- 24 EX. CATCH BASIN
RIM 981.74
12" INV. N.E. 957.94
- 25 EX. CATCH BASIN
RIM 981.74
12" INV. S.W. 966.44
- 26 EX. CATCH BASIN
RIM 959.29
12" INV. N.E. 952.54
- 27 EX. CATCH BASIN
RIM 980.72
12" INV. N.E. 956.57
- 28 EX. CATCH BASIN
RIM 980.83
12" INV. S.W. 955.83
24" INV. N. 952.88
24" INV. S.E. 949.08
- 29 EX. CATCH BASIN
RIM 980.53
21" INV. N.E. 953.43
24" INV. S.W. 953.23
- 30 EX. CATCH BASIN
RIM 980.55
21" INV. N.E. 953.90
21" INV. S.W. 953.80
- 31 EX. CATCH BASIN
RIM 950.43
21" INV. N.E. 952.54
12" INV. N. 946.10
- 32 EX. CATCH BASIN
RIM 950.58
12" INV. S.W. 956.68
- 33 EX. CATCH BASIN
RIM 950.49
12" INV. S. 946.10
- 34 EX. CATCH BASIN
RIM 950.58
12" INV. N. 946.10
12" INV. S.E. 946.10
- 35 EX. CATCH BASIN
RIM 959.29
12" INV. N.E. 952.54
- 36 EX. OUTLET STRUCTURE
RIM 980.85
24" INV. E. 947.06
- 37 EX. OUTLET STRUCTURE
RIM 948.98
12" INV. N.E. 934.98

LEGEND

- - - - - EXISTING ELEVATION
- + + + + + PROPOSED ELEVATION (ADD 900 FEET)
- - - - - EXISTING CONTOUR
- - - - - EXISTING CONTOUR PER PREVIOUS PLAN
- (T)
- (M)
- (U.P.) - UTILITY POLE
- (GUY) - GUY WIRE
- (T.S.) - TRAFFIC SIGN
- (H.D.) - FIRE HYDRANT
- (G.V.) - GATE VALVE
- (C.B.) - CATCH BASIN
- (M.H.) - MANHOLE
- (L.P.) - LIGHT POLE
- (F.M.) - FOUND MONUMENT
- (F.I.) - FOUND IRON
- (S.I.) - SET IRON
- (G.L.) - GROUND LIGHT
- (B.P.) - BUMPER POST
- (T.S.P.) - TRAFFIC SIGNAL POLE
- (T.P.) - TRUCK PARKING AREA
- (L.A.) - LOADING AREA



SCALE
1" = 40'



BENCH MARKS

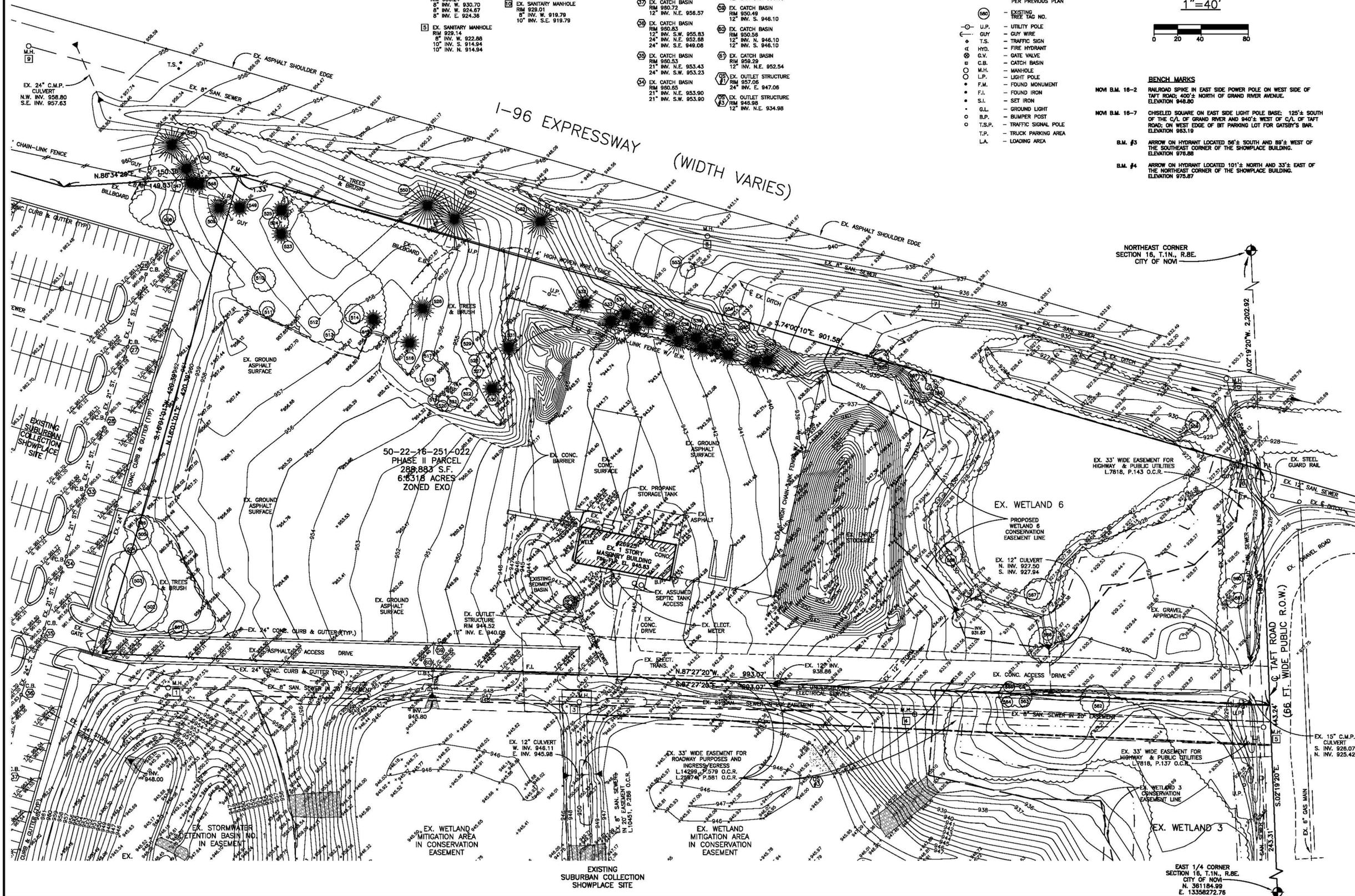
- NOM B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400' NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80
- NOM B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125' SOUTH OF THE C/L OF GRAND RIVER AND 840' WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. ELEVATION 963.19
- B.M. #3 ARROW ON HYDRANT LOCATED 56' SOUTH AND 89' WEST OF THE SOUTHWEST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.87
- B.M. #4 ARROW ON HYDRANT LOCATED 101' NORTH AND 33' EAST OF THE NORTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 975.87



PROJECT SITE
LOCATION MAP
SCALE 1" = 2000'

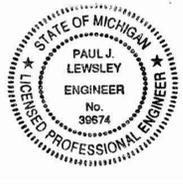
PROPERTY DESCRIPTION

A PARCEL OF LAND IN THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 16; THENCE N.02°19'20"W. 243.31 FEET ALONG THE EAST LINE OF SECTION 16 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE) TO THE POINT OF BEGINNING; THENCE N.87°27'20"W. 993.07 FEET; THENCE N.10°01'01"E. 420.39 FEET TO THE CENTERLINE RIGHT-OF-WAY LINE OF I-96 EXPRESSWAY (WIDTH VARIES); THENCE ALONG SAID RIGHT-OF-WAY LINE N.68°34'28"E. 1.33 FEET AND S.74°00'10"E. 801.58 FEET TO THE EAST LINE OF SECTION 18 AND CENTERLINE OF RIGHT-OF-WAY OF TAFT ROAD (66 FEET WIDE); THENCE ALONG THE EAST SECTION LINE S.02°19'20"E. 196.83 FEET TO THE POINT OF BEGINNING. CONTAINING 289,893 SQ. FT. OR 6.6318 ACRES AND BEING TOGETHER WITH AND SUBJECT TO EASEMENTS, RESTRICTIONS OR RIGHTS-OF-WAY OF RECORD.



EXISTING TREE INFORMATION

TAG NO.	SIZE	SPECIES	SOL. NAME	ELEVATION
501	12"	ELM	ULMUS	960.97
502	28"	CHERRY	PRUNUS	962.01
503	14"	MAPLE	ACER	963.38
504	10"	POPLAR	POPULUS	962.98
505	15"	CHERRY	PRUNUS	962.45
506	18"	CHERRY	PRUNUS	961.33
507	12" x 10"	CHERRY	PRUNUS	964.53
508	12" x 10"	POPLAR	POPULUS	960.84
509	12"	AUSTRIAN PINE	PINUS NIGRA	957.36
510	15"	MAPLE	ACER	958.03
511	10"	POPLAR	POPULUS	958.38
512	27"	ASH	FRAXINUS	957.08
513	10"	ASH	FRAXINUS	957.59
514	10"	ELM	ULMUS	958.32
515	10"	AUSTRIAN PINE	PINUS NIGRA	958.74
516	10"	AUSTRIAN PINE	PINUS NIGRA	958.05
517	10"	MAPLE	ACER	956.15
518	18"	CHERRY	PRUNUS	956.65
519	10"	CHERRY	PRUNUS	956.89
520	15"	ELM	ULMUS	956.79
521	18"	CHERRY	PRUNUS	955.74
522	15"	MAPLE	ACER	955.40
523	10"	AUSTRIAN PINE	PINUS NIGRA	956.30
524	10"	AUSTRIAN PINE	PINUS NIGRA	956.47
525	10"	AUSTRIAN PINE	PINUS NIGRA	956.47
526	12"	AUSTRIAN PINE	PINUS NIGRA	957.35
527	10"	MAPLE	ACER	954.78
528	10"	MAPLE	ACER	954.06
529	15" x 10"	ASH	FRAXINUS	954.05
530	10"	AUSTRIAN PINE	PINUS NIGRA	954.64
531	10"	AUSTRIAN PINE	PINUS NIGRA	948.54
532	10"	AUSTRIAN PINE	PINUS NIGRA	948.28
533	12"	AUSTRIAN PINE	PINUS NIGRA	946.81
534	12"	AUSTRIAN PINE	PINUS NIGRA	946.74
535	10"	AUSTRIAN PINE	PINUS NIGRA	944.87
536	12"	AUSTRIAN PINE	PINUS NIGRA	945.97
537	10"	AUSTRIAN PINE	PINUS NIGRA	945.23
538	15"	AUSTRIAN PINE	PINUS NIGRA	944.34
539	15"	AUSTRIAN PINE	PINUS NIGRA	943.80
540	12"	AUSTRIAN PINE	PINUS NIGRA	943.38
541	12"	AUSTRIAN PINE	PINUS NIGRA	943.67
542	12"	AUSTRIAN PINE	PINUS NIGRA	943.01
543	12"	AUSTRIAN PINE	PINUS NIGRA	941.29
544	12"	AUSTRIAN PINE	PINUS NIGRA	941.12
545	18"	CHERRY	PRUNUS	959.38
546	15"	AUSTRIAN PINE	PINUS NIGRA	959.57
547	10"	AUSTRIAN PINE	PINUS NIGRA	959.41
548	10"	AUSTRIAN PINE	PINUS NIGRA	958.57
549	10"	AUSTRIAN PINE	PINUS NIGRA	957.88
550	27"	AUSTRIAN PINE	PINUS NIGRA	956.14
551	27"	AUSTRIAN PINE	PINUS NIGRA	955.62
552	18"	AUSTRIAN PINE	PINUS NIGRA	948.35
553	10"	POPLAR	POPULUS	936.05
554	10"	POPLAR	POPULUS	933.30
555	15"	POPLAR	POPULUS	933.15
556	10"	POPLAR	POPULUS	927.31
557	10"	POPLAR	POPULUS	927.72
558	15"	ELM	ULMUS	927.70
559	15"	POPLAR	POPULUS	929.71
560	10"	POPLAR	POPULUS	927.44
561	18"	WILLOW	SALIX	926.98
562	18"	POPLAR	POPULUS	935.10
563	15"	POPLAR	POPULUS	929.74
564	10"	POPLAR	POPULUS	930.18
565	15"	POPLAR	POPULUS	930.29
566	21"	POPLAR	POPULUS	928.50
567	18"	POPLAR	POPULUS	927.47
568	15"	POPLAR	POPULUS	928.74



72 HOURS BEFORE YOU DIG CALL MISS DIG 1-800-482-7771

CLIENT: TBOH, LLC
45100 GRAND RIVER AVE.
NOVI, MICHIGAN 48375
PHONE: 248/348-5600

REVISIONS REVISED 06/26/12 PER CITY REVIEW

PROPOSED
RIDE AND DRIVE AUTOMOTIVE RESEARCH LOT
IN SECTION 16
OAKLAND COUNTY

PRELIMINARY TOPOGRAPHIC SURVEY
Environmental engineers, Inc.
18620 WEST TEN MILE ROAD SOUTHFIELD, MICHIGAN 48075
PHONE: 248/424-9510 FAX: 248/424-2954

CLIENT PROJECT No. 1104 EX
PROJECT No. 1104 EX
DATE ISSUED 06/08/12
SHEET No. TS-1