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## CITY of NOVI CITY COUNCIL

**Agenda Item 2**  
**March 11, 2013**

**SUBJECT:** Preliminary approval of the request of Toll Brothers, Inc. for The Meadows of Island Lake of Novi JSP12-65, for inclusion of the subject property into the existing Island Lake of Novi Residential Unit Development (RUD), and modifications to the RUD concept plan. The subject property is 40.68 acres of land located near the northeast corner of Ten Mile Road and Wixom Road. The applicant is proposing a 74 unit single family development that would be Phase 7 of the existing Island Lake of Novi development.

**SUBMITTING DEPARTMENT:** Community Development <sup>Bach</sup> Department - Planning

**CITY MANAGER APPROVAL:** 

**BACKGROUND INFORMATION:**

Toll Brothers is proposing to add a 40.68 acre parcel near the northeast corner of Ten Mile and Wixom Roads to the existing Island Lake RUD in order to construct 74 single-family residential units. The proposed road system would connect to existing Acorn Trail to the north in "The Vineyards" Phase 3C of Island Lake, and provide a new road connection to Wixom Road directly across from Drakes Bay Drive. The applicant indicates this phase would be considered part of the Island Lake community, sharing the existing clubhouse, open space and recreational facilities with the remainder of the development. The proposed "Meadows" phase is directly adjacent to other phases of Island Lake to the north, and on the west side of Wixom Road.

Per the materials submitted in response to staff reviews, staff concurs that there are currently 784 units constructed or approved in the existing Island Lake development. The addition of 74 units would bring the total number of units to 858 units, which is still fewer than the amount permitted in the existing RUD Agreement (884 units). (Please note the planning review letter indicates 773 units have been constructed or approved in the existing development. This was later shown to be in error and 11 units short of the actual total.) With the addition of the 40.68 acre parcel, the Island Lake of Novi Development will consist of 956.7 acres in total. Slightly more than half (50.5%) of the total acreage of the Island Lake Development will be preserved as open space.

**Intent of the Residential Unit Development (RUD) option**

As an optional form of development, the RUD allows development flexibility of various types of residential dwelling units (one-family, attached one-family cluster). It is also the intent of the RUD option to permit permanent preservation of valuable open land, fragile natural resources and rural community character that would be lost under conventional development. This is accomplished by permitting flexible lot sizes in accordance with open land preservation credits when the residential developments are located in a substantial open land setting, and through the consideration of relaxation of area, bulk, yard, dimensional and other zoning ordinance standards in order to accomplish specific planning objectives.

This flexibility is intended to reduce the visual intensity of development; provide privacy; protect natural resources from intrusion, pollution, or impairment; protect locally important

animal and plant habitats; preserve lands of unique scenic, historic, or geologic value; provide private neighborhood recreation; and protect the public health, safety and welfare.

Such flexibility will also provide for:

- The use of land in accordance with its character and adaptability;
- The construction and maintenance of streets, utilities and public services in a more economical and efficient manner;
- The compatible design and use of neighboring properties; and
- The reduction of development sprawl, so as to preserve open space as undeveloped land.

Amendments and revisions to an approved RUD plan shall require all procedures and conditions that are required for original submittal and review for amendments that are considered "major changes". The addition of land area is considered a "major change", so full review of the ordinance standards is necessary at this time.

The ordinance states that an RUD shall include detached one-family dwelling units, as is proposed in this phase. The applicant has not proposed any attached units, clubhouses, churches, schools or other uses that may be permitted as a part of the proposed development phase. While a variety of housing types is expected in an RUD, the overall density generally shall not exceed the density permitted in the underlying zoning districts. The applicant has provided a statement that the proposed density will increase from 0.89 units/acre to 0.96 units/acre if the RUD Amendment is approved. The Island Lake Development is a combination of R-1, One Family Residential, and RA, Residential Acreage zoning.

### **Lot Sizes**

The applicant has requested a modification of the lot size and width requirements as follows:

- A reduction in the RA minimum lot size from 43,560 square feet to a minimum of 12,000 square feet.
- A reduction in the RA minimum lot width from 150 feet to 90 feet.

The City Council may modify lot size and width requirements where such modification will result in the preservation of open space for those purposes set forth in Section 2402.3B of the Zoning Ordinance and where the RUD will provide a genuine variety of lot sizes. The plans indicate that a total of 13.7 percent of the area in this phase will be maintained as open space. The applicant has provided a summary of lot sizes throughout the entire development. In the proposed phase, lots range from approximately 12,000 square feet to 28,719 square feet, allowing for some variation in lot size. This is consistent with other phases of Island Lake of Novi, which has a variety of lot sizes throughout the development.

### **Side Yard Setbacks**

Additionally, the applicant has requested a three (3) foot reduction in the required ten (10) feet side yard building setback. The City Council is authorized to grant deviations from the strict terms of the Zoning Ordinance with a Council finding of the factors listed in Sec. 2402.6. The applicant has provided justification related to the requested deviation indicating there is a conflict between the originally approved RUD and current City ordinances regulating driveways necessitating a three (3) foot deviation in certain circumstances to accommodate side-entry garages. A minimum of 20 feet of separation between houses would still be maintained. Please see the attached exhibit from the applicant detailing the request.

### **Submittal History**

Late last year, the applicant submitted an RUD Plan, RUD Amendment and Preliminary Site Plan showing 75 single-family residential units. The Planning Commission held a public hearing on December 12, 2012 for the submitted RUD Plan. Relevant meeting minutes are attached. At that hearing several members of the public expressed concerns. Primarily due to deficiencies in the application submittal requirements, the Planning Commission postponed consideration and adjourned the public hearing to a date to be determined. The applicant subsequently submitted a revised RUD Plan, RUD Amendment and Preliminary Site Plan proposing 74 single-family units (1 fewer than previously proposed). The eliminated unit has been converted to open space and parkland and the applicant has offered to contribute \$25,000 to the Island Lake Homeowner's Association to be used for the expansion of the existing swimming pool deck. The applicant has also included several features to aid pedestrians, including a sidewalk connection to the proposed Dinser Drive sidewalk, a crosswalk on Wixom Road and the construction of approximately 928 feet of missing sidewalk within the Wixom Road right-of-way on the excluded property south of the proposed development.

The Planning Commission held a second public hearing on February 13, 2013 and recommended approval of the revised RUD plan. Relevant meeting minutes are attached.

If the RUD Amendment is approved by the City Council, amended RUD Agreement documents will be considered for approval at a future meeting, followed by site plan approval in the usual course.

**RECOMMENDED ACTION:** To grant preliminary approval of the Amended Residential Unit Development Plan for the Meadows of Island Lake of Novi to be added to the Island Lake of Novi RUD (Amended RUD Plan), with the total number of units permitted in the Island Lake of Novi RUD including the added 40.68 acre parcel, not to exceed the currently permitted 884 units. This preliminary approval, including the lot size modifications and building setback deviations, is, subject to and conditioned on Council's final approval of the Amended RUD Plan and Amendment to the RUD Agreement required by the Zoning Ordinance at a future meeting. This motion is based on the following findings, lot size modifications, building setback deviations, and conditions:

Determinations (Zoning Ordinance Section 2402.8.A):

- a. The site is zoned for and appropriate for the proposed single-family residential use;
- b. Council is satisfied that with the proposed road connections, sidewalk and crosswalk improvements, added parkland, and contributions to the existing Island Lake of Novi amenities, the development will not have detrimental effects on adjacent properties and the community;
- c. Council is satisfied with the applicant's commitment and desire to proceed with construction of 74 new homes as demonstrating a need for the proposed use;
- d. Care has been taken to maintain the naturalness of the site and to blend the use within the site and its surroundings through the preservation of large Walnut trees along Dinser Drive and the preservation of approximately 13.7% of the site as open space that include a new park;
- e. Council is satisfied that there will be clear, explicit, substantial and ascertainable benefits to the City as a result of the Amended RUD, including but not limited to improvement of traffic circulation, inclusion in the existing storm water treatment system, orderly and efficient layout and construction of water and sanitary sewer utilities, and pedestrian safety improvements.

f. Factors evaluated (Zoning Ordinance Section 2402.8.B):

1. Subject to the lot size and lot width modifications also being approved by this motion, all applicable provisions of the Zoning Ordinance, including those in Section 2402 and for special land uses, and other ordinances, codes, regulations and laws have been or will be met;
2. Council is satisfied with the adequacy of the areas that have been set aside in the existing and proposed addition to the Island Lake RUD development area for walkways, playgrounds, parks, recreation areas, parking areas and other open spaces and areas for use by residents of the development;
3. Based on and subject to the recommendations in the January 28, 2013 City traffic consultant's review letter, Council is satisfied that the traffic circulation, sidewalk and crosswalk features and improvements for within the site have been designed to assure the safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets;
4. Based on and subject to the recommendations in the January 28, 2013 City traffic consultant's review letter, Council is satisfied that the proposed use will not cause any detrimental impact in existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfare level of service;
5. The plan provides adequate means of disposing of sanitary sewage by an extension to and connection of the sewer in Dinser Drive that will allow for future connections and service for properties currently without sewer service, disposing of stormwater drainage into the existing Island Lake storm water treatment system, and supplying the development with water by extensions that will allow for future connections and service for properties currently without water service;
6. The Amended RUD will provide for the preservation and creation of approximately 12% of the site as open space and result in minimal impacts to provided open space and the most significant natural features, including the mature Walnut trees along Dinser Drive;
7. The Amended RUD will be compatible with adjacent and neighboring land uses for the reasons already stated;
8. The desirability of conventional residential development on this site in strict conformity with the otherwise applicable minimum lot sizes and widths being modified by this motion is outweighed by benefits occurring from the preservation and creation of the open space and establishment of the park facility that will result from the Amended RUD;
9. Any detrimental impact from the Amended RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of the park facility that will result from the Amended RUD;
10. Council is satisfied that the proposed reductions in lot sizes and setback areas are the minimum necessary to preserve and create open space, to provide for the park site, and to ensure compatibility with adjacent and neighboring land uses, primarily the existing Island Lake of Novi RUD development of which this site will become a part;
11. The Amended RUD will not have a detrimental impact on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost as evidenced by the proposed connections and benefits to the storm water, sanitary sewer and water systems already stated;

12. Council is satisfied that the applicant has made or will make satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements;
  13. Council is satisfied that the applicant has made or will make satisfactory provisions for future ownership and maintenance of all common areas within the proposed development; and
  14. Proposed deviations from the area, bulk, yard, and other dimensional requirements of the Zoning Ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area.
- g. Modification of proposed lot sizes to a minimum of 12,000 square feet and modification of proposed lot widths to a minimum of 90 feet is hereby approved, with this approval based on and limited to the lot configuration shown on the preliminary plan as last revised, as the requested modification will result in the preservation of open space for those purposes noted in Section 2402.3.B of the Zoning Ordinance and the Amended RUD will provide a genuine variety of lot sizes;
- h. Deviation to allow a reduced side yard building setback from ten (10) feet to seven (7) feet in several instances with a finding that:
1. If the deviation were not granted, it would prohibit an enhancement of the development that would be in the greater public interest;
  2. Approving the proposed deviation would be compatible with the existing and planned uses in the surrounding area;
  3. The proposed deviation would not be detrimental to the natural features and resources of the affected property and surrounding area, or would enhance or preserve such natural features and resources;
  4. The proposed deviation would not be injurious to the safety or convenience of vehicular or pedestrian traffic; and
  5. The proposed deviation would not cause an adverse fiscal or financial impact on the City's ability to provide services and facilities to the property or to the public as a whole.
- i. This preliminary approval is subject to the Amended RUD Plan and all plans and activities related to it being in compliance with all applicable provisions of the Zoning Ordinance, including Articles 3, 24 and 25, and all applicable City Zoning Ordinance approvals, decisions, conditions and permits.

	1	2	Y	N
<b>Mayor Gatt</b>				
<b>Mayor Pro Tem Staudt</b>				
<b>Council Member Casey</b>				
<b>Council Member Fischer</b>				

	1	2	Y	N
<b>Council Member Margolis</b>				
<b>Council Member Mutch</b>				
<b>Council Member Wrobel</b>				

**SITE PLAN**



**ALLEN DESIGN**  
 LAND PLANNING / LANDSCAPE ARCHITECTURE  
 537 CARPENTER • NORTHVILLE, MI 48167  
 248.867.4648 • Fax: 248.349.0539  
 Email: pd@alldesign.com



Seal:

Title:  
**Preliminary Plan**

Project:  
 Island Lake of Novi  
 Novi, Michigan

Prepared for:  
 Toll Brothers  
 39555 Williams K. Smith Dr., Suite B  
 New Hudson, Michigan 48165

Revision:	Issued:
Submitted	October 17, 2012
Submitted	November 5, 2012
Revised	November 28, 2012

Job Number:  
 12 097

Drawn By:	Checked By:
ja	ja



**NORTH**  
 No Scale

Sheet No.

L-1

MAPS  
Location  
Zoning  
Future Land Use  
Natural Features




# Island Lake Meadows JSP12-65

Location



Map Author: Kristen Kapelanski  
Date: 12-05-12  
Project: Island Lake Meadows JSP12-65  
Version #: 1.0

**Map Legend**

 Subject Property



**City of Novi**

Planning Division  
Community Development  
45175 W Ten Mile Rd  
Novi, MI 48375  
cityofnovi.org

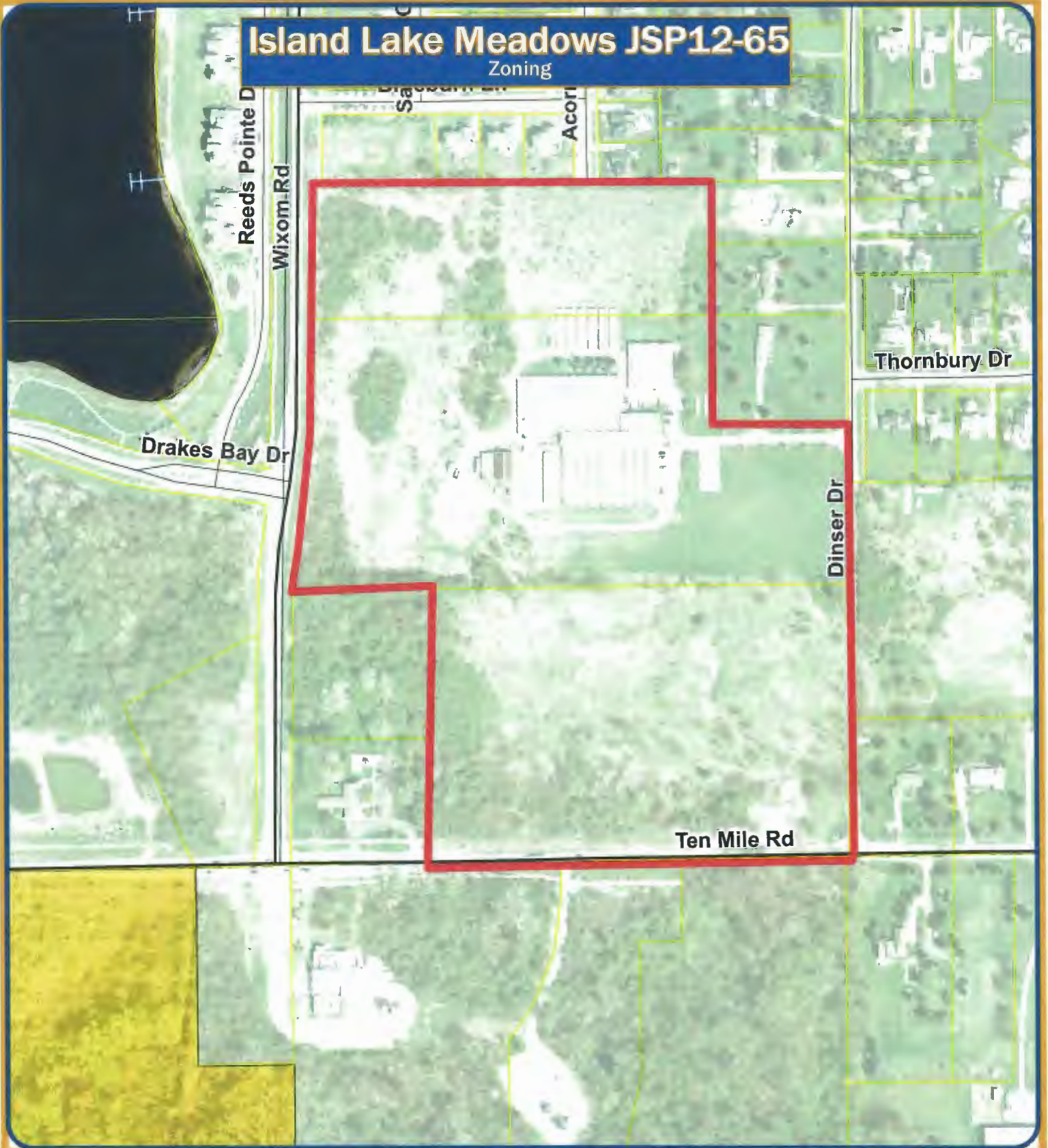
**MAP INTERPRETATION NOTICE**  
Map information depicted is not intended to replace or substitute for an official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

0 62.5 125 250 375 500  
Feet




1 inch = 314 feet

# Island Lake Meadows JSP12-65

## Zoning



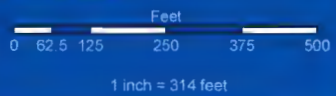
Map Author: Kristen Kapelanski  
 Date: 12-05-12  
 Project: Island Lake Meadows JSP12-65  
 Version #: 1.0

Map Legend	
	Subject Property
	R-A: Residential Acreage
	R-1: One-Family Residential District



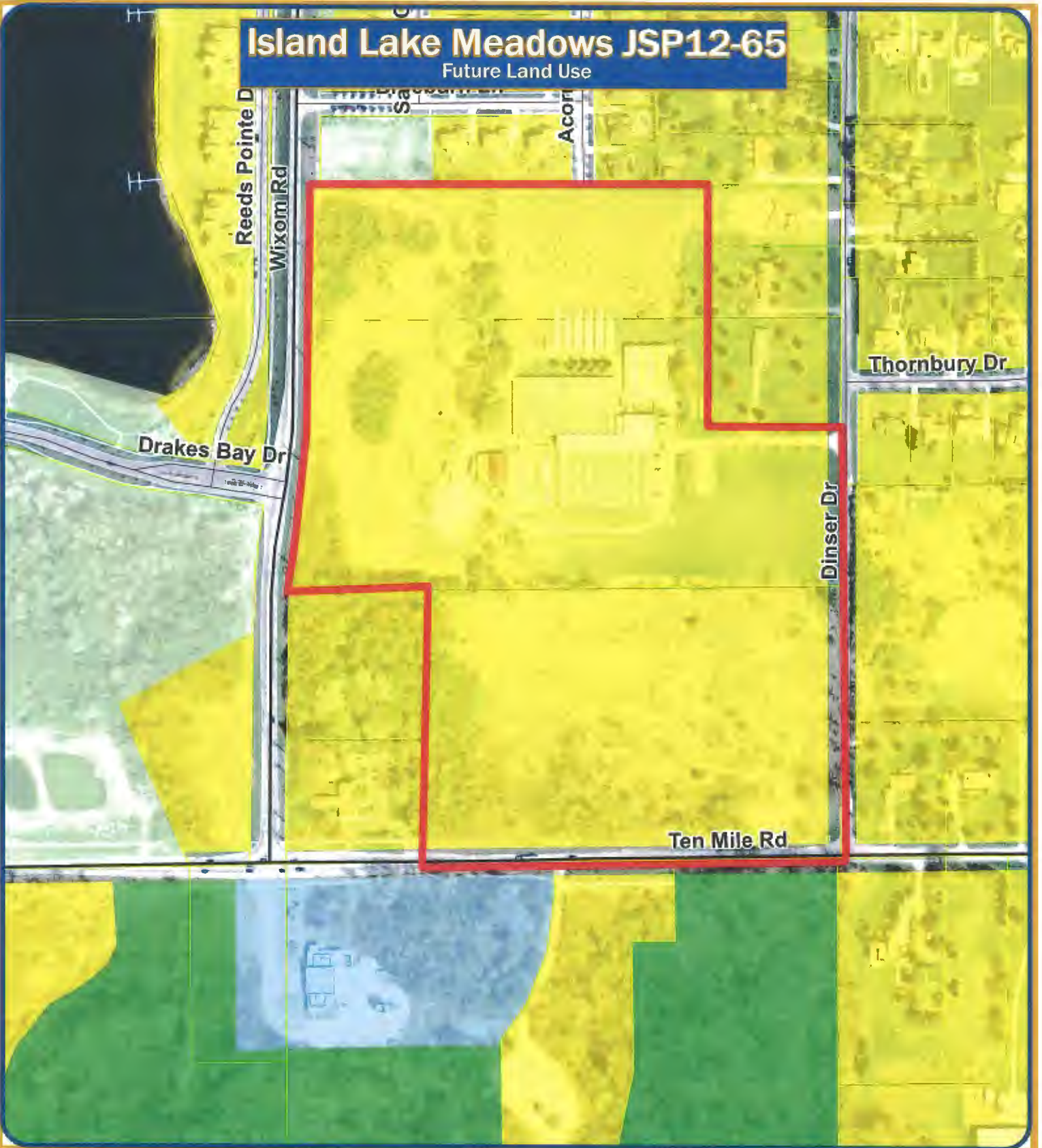
**City of Novi**  
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 Novi, MI 48375  
[cityofnovi.org](http://cityofnovi.org)

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# Island Lake Meadows JSP12-65

Future Land Use



Map Author: Kristen Kapelanski  
 Date: 12-05-12  
 Project: Island Lake Meadows JSP12-65  
 Version #: 1.0

Map Legend	
	Subject Property
	Single Family
	Public
	Public Park
	Private Park



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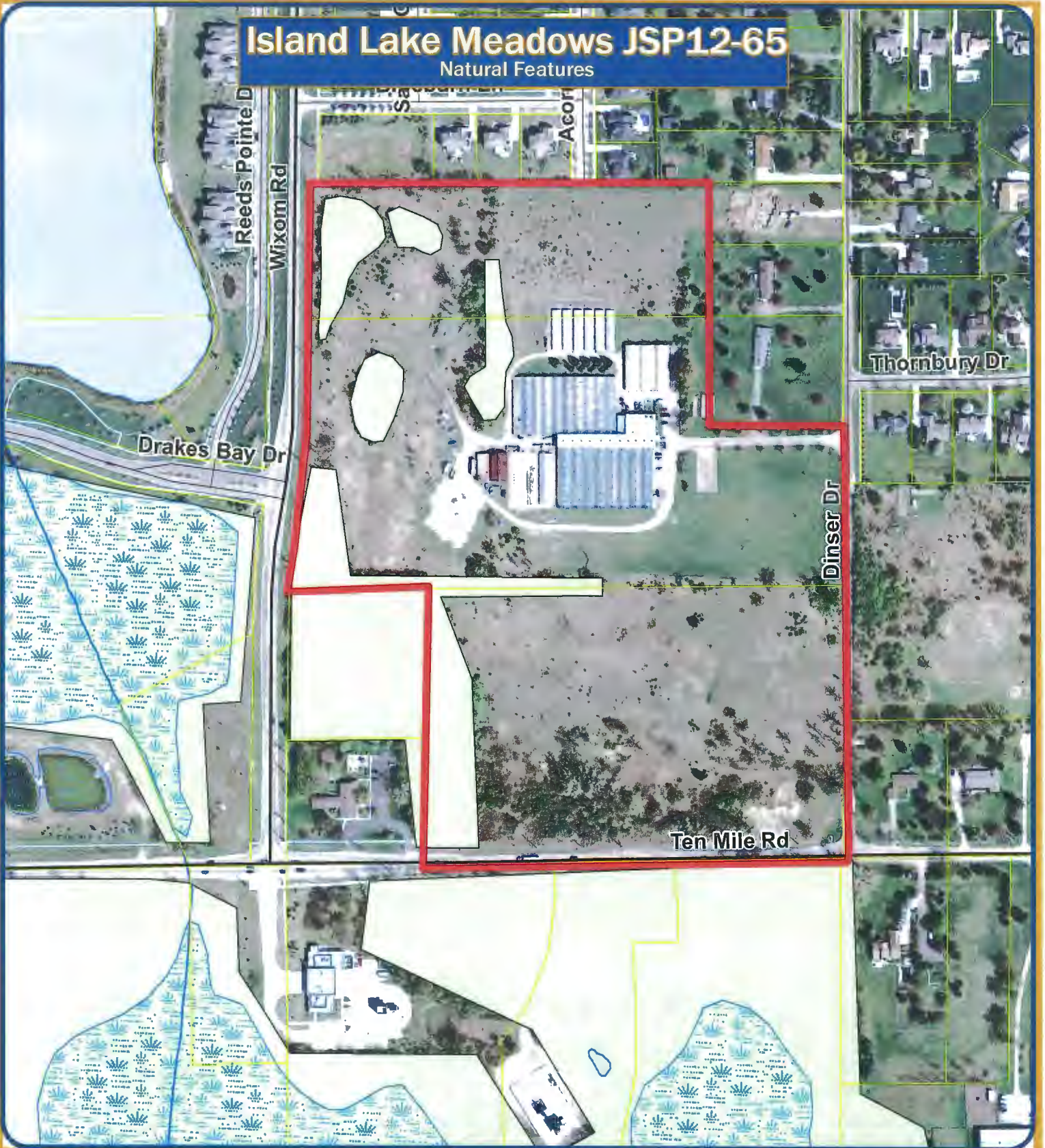
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1 inch = 314 feet

# Island Lake Meadows JSP12-65

## Natural Features



Map Author: Kristen Kapelanski  
 Date: 12-05-12  
 Project: Island Lake Meadows JSP12-65  
 Version #: 1.0

Map Legend	
	Subject Property
	Wetlands
	Woodlands

**MAP INTERPRETATION NOTICE**

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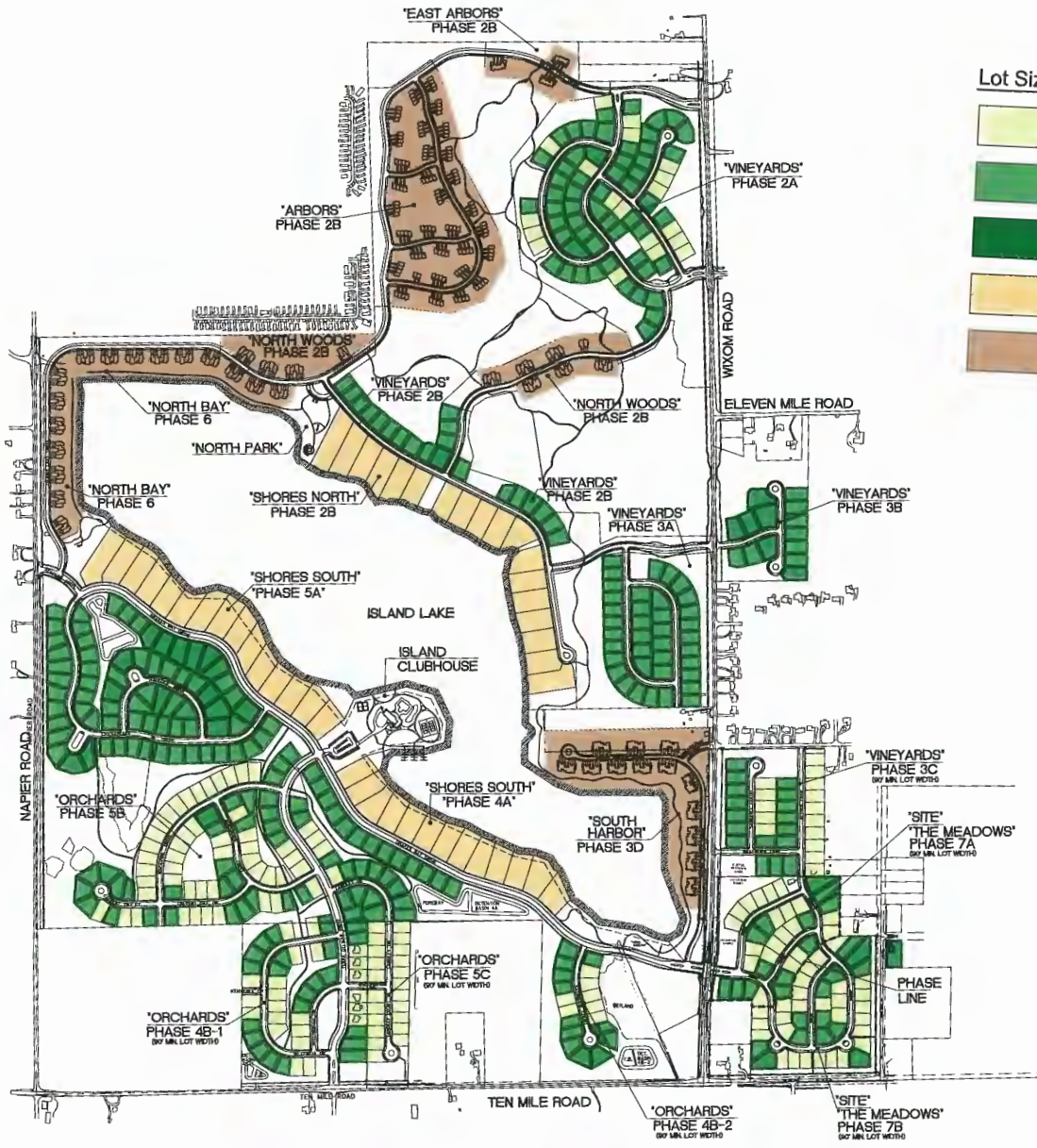
### City of Novi

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1 inch = 314 feet

**INFORMATION FROM APPLICANT**



**Lot Size Comparison**

	Lots 12,000 s.f. - 14,999 s.f.	186 Lots
	Lots 15,000 s.f. - 21,779 s.f.	301 Lots
	Lots 21,800 s.f. - 43,559 s.f.	31 Lots
	Lots 1 Acre or Larger	46 Lots
	Attached Units	294 Units

**Island Lake of Novi**  
Novi Michigan



Summary of the Proposed Amendment to the R.U.D.  
Island Lake of Novi (*formerly Harvest Lake of Novi*)

Introduction

Toll Bros, Inc. has purchased a 40.7 acre parcel fronting Ten Mile and Wixom Roads, immediately adjacent to the Island Lake of Novi Residential Unit Development (the RUD). Toll Bros, Inc. wishes to incorporate this parcel into the RUD for Island Lake of Novi, and seeks an amendment to the RUD with this submittal.

Description of Site

The parcel is a 40.7 acre site of open, sloping land, previously used for agriculture & commercial nursery purposes. The site is now fallow field with two small pocket wetlands and approximately 4.7 acres of woodlands on the property. The site has 985 feet frontage on Ten Mile Rd., 980 feet frontage on Wixom Rd., and 1091 feet frontage on Dinser.

There are good sightlines on Wixom Road for a main access point, across from the existing Drakes Bay Drive access point. This is the optimal location for ingress and egress to the parcel. A secondary access is provided to the existing Island Lake Vineyards (PH 3C) street just north of the property.

The current zoning of the site is RA, Residential Acreage, allowing a maximum of 0.8 dwelling units per acre. It is contiguous with Island Lake of Novi, on the north property line, as well as the west property line (Bifurcated by Wixom Rd.).

RUD Amendment Request

Toll Bros, Inc. requests an amendment to the RUD agreement. The request is as follows:

- 1) Toll Brothers proposes the addition of the 40.7 acre parcel described above to the 916 acres within the Residential Unit Development. This would bring the total acreage of the RUD for Island Lake of Novi up to 956.7 acres.
- 2) The 40.7 acre parcel is zoned RA, at 0.8 dwelling units per acre, permitting a total of 32 new single-family homes. The total number of units permitted for the Island Lake of Novi RUD is 884 homes. As part of this RUD amendment, Toll Brothers wishes to add the units permitted for the 40.7 acres to its development total of 884 homes, for a new total of 916 residential units permitted with the RUD. Toll Brothers intends to build Single Family Detached homes on this parcel, to the same lot width as the homes permitted immediately north of the site. Toll Brothers estimates development of approximately 74 new lots on the Meadows parcel. Upon build-out of the Meadows addition, there will be a total of 858 constructed units, still well below the original RUD unit maximum.

Inclusion of this property into the Island Lake of Novi RUD will benefit the City of Novi for many reasons. It will consolidate traffic ingress and egress, eliminating the need for a separate road access off of Dinser Rd. The stub street connections allow the parcel's residential traffic access to the secondary entrance at Wixom Rd., and use the internal road network as well. The parcel will tie into the Island Lake of Novi storm water treatment system assuring a high quality of storm water treatment, and eliminating the need for a separate detention basin on the site. There will be a more orderly and efficient layout and construction of utilities, as part of the Island Lake Vineyards (phase 3C). A sanitary sewer extension is proposed to Dinser Drive to allow for future connections and service for parcels east of Dinser Drive which currently do not have public sanitary sewer service. Water main extensions are proposed along the Ten Mile Road and Dinser Drive frontage to allow for future extensions and connections for parcels east of Dinser Drive which currently do not have public water main service.

Toll Bros, Inc. will add a painted crosswalk and barrier free curb cuts at the main entrance. The crosswalk design will match the two (2) existing painted crosswalks further north on Wixom Road. Furthermore, Toll Bros., Inc. is committed to filling in approximately 928 feet of missing sidewalks south of the Meadows site in the current Wixom Road right-of-way so residents may cross Wixom Road at the traffic light and still have safety path access to both sides of Drakes Bay. This will further enhance the connectivity of both the existing Vineyards Phase 3C and proposed Meadows to the lake and amenities.

Toll Bros, Inc. will contribute to the expansion and re-rating of the existing pool deck area to increase its capacity. A one-time lump sum payment of \$25,000 will be made to the Master Island Lake HOA specifically earmarked for the deck expansion. Final Design/Permit/Construction will be under HOA control. This figure is derived as follows: 5,000 square feet concrete paving @\$3 per square foot equals \$15,000 and 250 lineal feet metal fence @\$40 per lineal foot equals \$10,000.

There will be a greater amount of open space and perimeter landscape along the Ten Mile Road corridor, Wixom Road and Dinser Drive than if developed separately (requiring additional road connections) with homes and lot sizes visually compatible with the adjacent homes of Island Lake of Novi. A pocket play park is provided which includes a children's play structure and benches. The play park and open space is strategically located in a location which allows shared use for the neighbors to the north and to enhance the long vistas of the lake from the Drakes Bay East access point and surrounding area. It will also enhance views of the lake from the new access for residents in the Meadows which will further connect and associate the neighborhood with the overall development.

50.5% of total acreage will still be preserved as open space and the majority of residential units will be single family detached homes. With Island Lake, its waterfront parks, trails and preservation zones, home buyers will have access to a significantly greater amount of privately maintained recreational facilities and open space as part of the Island Lake of Novi Homeowners Association than possible as a separate subdivision. Island Lake of Novi will continue as a high quality, planned residential development set within a generous natural environment of woods and wetlands surrounding Island Lake. While Toll Brothers



proposes to increase the land area of the RUD to 956.7 acres, with additional 32 homes, there will be no increase in the gross density of the Island Lake of Novi Community. Single-family detached lots (including waterfront sites) will still comprise the majority of units at 68% of the total, or approximately 622 units. Over half of the site will still be preserved as permanent dedicated open space, per the original categories of the R.U.D. The Open Space Summary Table and Land Use Summary by Phase have been updated to reflect the revised acreage and units.

In order to support the proposed modifications, this report addendum includes the revision to the Area Plan, Open Space Plan, Open Space Summary Table, Pedestrian Network, Land Use by Phases, and Phasing Plan of the previously amended RUD report addendum submitted July 9, 2004. These revisions are intended to amend those same pages of July 9, 2004 Island Lake of Novi Residential Unit Development Report.

Per the City Design and Construction Standards, an access point for every 1,300 feet of perimeter is required but undesirable for the proposed development. The proposed layout will consolidate traffic ingress and egress, eliminating the need for a separate road access off of Dinser Rd. The stub street connections allow the parcel's residential traffic access to the secondary entrance at Wixom Rd., and use the internal road network as well. There will be a greater amount of open space and perimeter landscape along the Ten Mile Road corridor, Wixom Road and Dinser Road.

Additionally, applicant requests consideration of a slight modification to the side yard set backs to correct an administrative oversight as described on attached Exhibit 1.

The current RUD setback requirements for 90' minimum wide lots are as follows:

Front: 30'

Rear: 35'

Side-Yard: 10' minimum, 30' total

The requested setback requirements for 90' minimum wide lots are as follows:

Front: 30'

Rear: 35'

\*Side-Yard: 7' minimum, 30' total

\*Maintain 20' minimum between buildings

Justification for reduction in side-yard setback requirement:

The majority of the existing houses within the Island Lake of Novi community have side-entry garages. The applicant believes this was the original intent of the RUD when 30' combined setbacks were originally approved, but other City Ordinance regulating driveways inadvertently modifies this to 33' and contradicts the RUD.

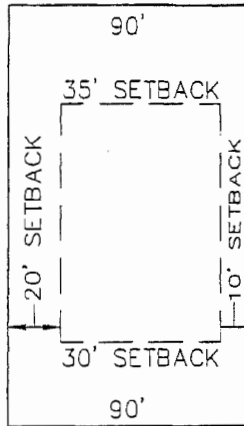
According to the current City of Novi driveway ordinance, side-entry garages require a minimum 20' wide driveway approach and 3' wide separation between driveway approach and side lot line. When considering 90' wide lots, 30' of total side-yard setbacks net a maximum house width of 60'. However, when considering 90' wide lots and a house with a side-entry garage, the maximum house width is only 57', with side-yard setbacks of 23' and 10'.

The applicant is respectfully requesting that a 3' variance be granted for the minimum side-yard setback on 90' minimum wide lots. The separation between houses will remain consistent with the current RUD, netting a 20' minimum distance between houses and remains compatible with existing homes in the surrounding neighborhoods. Where side-entry garages on adjacent houses are opposite from one-another in the development, the side-yard setback shall revert to 10' and the minimum distance between houses shall be 20'.

This reduction in the minimum side-yard setback will allow the applicant to provide more house options and/or flexibility which further provides ability to meet the needs of prospective home-owners.

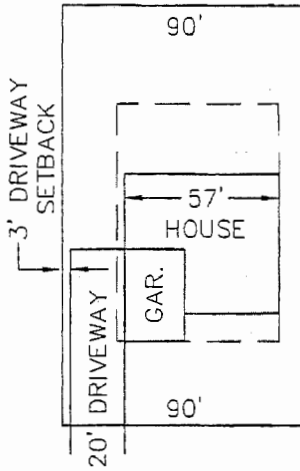
# EXHIBIT 1

CURRENT SETBACK ORDINANCE  
(90' WIDE LOT)



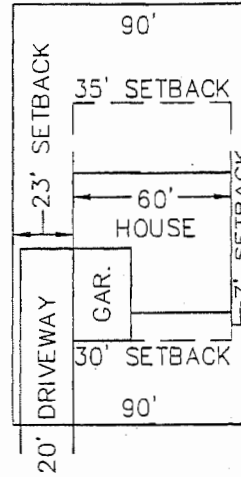
-30' COMBINED SIDE YARD SETBACK

CURRENT DRIVEWAY ORDINANCE  
(90' WIDE LOT)



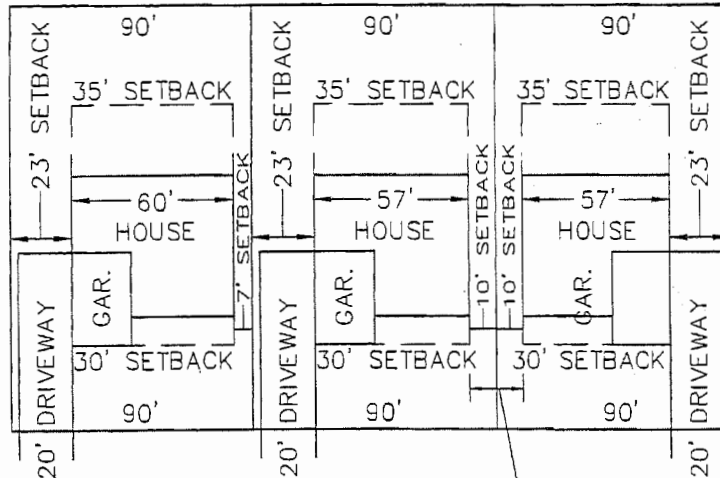
-MAXIMUM 57' WIDE HOUSE WITH SIDE ENTRY GARAGE

REQUESTED SETBACK MODIFICATION  
(90' WIDE LOT)



-30' COMBINED SIDE YARD SETBACK  
-MAXIMUM 60' WIDE HOUSE WITH SIDE ENTRY GARAGE

## EXAMPLE



MAINTAIN 20' MINIMUM HOUSE SEPARATION

### NOTES:

1. APPLICANT IS REQUESTING A SETBACK MODIFICATION TO THE SIDE YARD SETBACKS FOR 90' WIDE LOTS.
2. MINIMUM HOUSE SEPARATION WILL ALWAYS BE 20'.

**ALPINE**  
ENGINEERING, INC.  
CIVIL ENGINEERS & LAND SURVEYORS  
46892 WEST ROAD  
SUITE 109  
NOVI, MICHIGAN 48377  
(248) 926-3701 (BUS)  
(248) 926-3765 (FAX)

CLIENT:	TOLL BROTHERS INC.	DATE:	11-08-2012
		DRAWN BY:	JPP
		CHECKED BY:	TAG
		SCALE:	HOR 1"=50 FT. VER 1"=-- FT.
		12-362	

**EXHIBIT 1**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
SECTION: 20 TOWNSHIP: 1 N. RANGE: 8 E.  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN

Island Lake of Novi  
Residential Unit Development Amendment

Revised Open Space Summary, December 21, 2012

Common Open Space Category	*Approximate Acreage per July 9th 2004 Open Space Summary	*Acreage Applicable for Open Space Credit per July 9th 2004 Open Space Summary	Revised Open Space Summary November 9th 2012	Acreage Applicable for Open Space Credit November 9th 2012
Wetlands	107 ac.	2 ac.	107 ac.	2 ac.
Wetland Setbacks	5 ac.	5 ac.	5 ac.	5 ac.
Upland Woods	65 ac.	54 ac.	65 ac.	54 ac.
City Park	52 ac.	0 ac.	52 ac.	0 ac.
Resident Parks	22 ac.	18 ac.	22.3 ac.	18 ac.
Secondary Conservation Zone	18 ac.	16 ac.	18 ac.	16 ac.
Internal Greenbelts, Passive Recreation	19 ac.	18 ac.	19 ac.	18 ac.
Entrances, Perimeter Landscape	21 ac.	0 ac.	25.7 ac.	0 ac.
Lake (169 ac. 16,450 LF of Shoreline)	169 ac./17,545 LF 4,387 LF=25% of new shoreline	169 ac. 4,387 LF	169 ac./17,545 LF 4,387 LF=25% of new shoreline	169 ac. 4,387 LF
<b>Grand Total</b>	<b>478 ac.</b>	<b>282 ac.</b>	<b>483.0 ac.</b>	<b>282 ac.</b>

Notes:

\*Acreage shown per previous revised Open Space Summary Table, July 9th, 2004.

Combined open space comprises 50.5% of total site area.

Island Lake of Novi  
Residential Unit Development Amendment

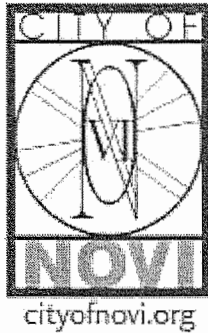
\*Revised Land Use Summary, December 21, 2012

Category	Approved in RUD Agreement	Proposed to Date	Revised RUD Agreement
<b>Proposed Residences By Unit Type:</b>			
Single-Family Attached Cluster	219	Combined	Combined
Waterfront/Woodland Att. Cluster	158	294	294 (32%)
Single-Family Detached Homes	464	518	576 (63%)
Single-Family Waterfront Homes	35-51	46	46 (5%)
Total Residences (dwelling units)	884	858	916
Total RUD Acreage	916	956.7	956.7
Average Gross Density (du/ac)	0.97	0.90	0.96
<b>Non-Residential Uses:</b>			
A. Schools	52.06 ac.		
B. City Park	52.17 ac.		
C. Waterfront Parks	min. 14.0 a.c		
D. Neighborhood Play Lot	min. 1.0 ac.		

\*Revised from Land Use Summary, July 9th 2004 RUD Amendment

**EXCERPT FROM  
MARCH 6, 2013 MEMO FROM  
COMMUNITY DEVELOPMENT**

# MEMORANDUM



**TO:** CLAY PEARSON, CITY MANAGER  
**FROM:** BARBARA MCBETH, AICP, DEPUTY DIRECTOR  
OF COMMUNITY DEVELOPMENT  
**SUBJECT:** UPDATES ON TWO DEVELOPMENT PROJECTS  
**DATE:** MARCH 6, 2013

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This memo is provided as an update on two development projects that have recently been reviewed and recommended by the Planning Commission, and which will be set for consideration by the City Council at an upcoming meeting. One project is the Island Lake "Meadows", a proposed 74-lot expansion to the Island Lake of Novi Residential Unit Development (RUD) for property near the northeast corner of Ten Mile and Wixom Roads. The second project is a GFS Marketplace retail store proposed for the northeastern outlot at the Twelve Mile Crossing at Fountainwalk Development.

### **Island Lake Meadows**

Toll Brothers is proposing to add a 40.68 acre parcel near the northeast corner of Ten Mile and Wixom Roads to the existing Island Lake RUD in order to construct 74 single-family residential units. The proposed road system would connect to existing Acorn Trail to the north in "The Vineyards" Phase 3C of Island Lake, and provide a new road connection to Wixom Road directly across from Drakes Bay Drive. Please see attached plan. The applicant indicates this phase would be considered part of the Island Lake community, sharing the existing clubhouse, open space and recreational facilities with the remainder of the development. The proposed "Meadows" phase is directly adjacent to other phases of Island Lake to the north, and on the west side of Wixom Road.

Per the materials submitted in response to staff reviews, staff concurs that there are currently 784 units constructed or approved in the existing Island Lake development. The addition of 74 units would bring the total number of units to 858 units, which is still fewer than the amount permitted in the existing RUD Agreement (884 units). (Please note the planning review letter indicates 773 units have been constructed or approved in the existing development. This was later shown to be in error and 11 units short of the actual total.) With the addition of the 40.68 acre parcel, the Island Lake of Novi Development will consist of 956.7 acres in total. Slightly more than half (50.5%) of the total acreage of the Island Lake Development will be preserved as open space.

The City Council initially approved the Residential Unit Development in 1998. Lestlyde Lifesyles was the original applicant in the request (aka Levy Companies). Toll Brothers acquired the property and rights to develop shortly after the RUD was approved and is the applicant in the current request.

As an optional form of development, the RUD allows development flexibility of various types of residential dwelling units (one-family, attached one-family cluster). It is also the intent of the RUD option to permit permanent preservation of valuable open land, fragile natural resources and rural community character that would be lost under

conventional development. This is accomplished by permitting flexible lot sizes in accordance with open land preservation credits when the residential developments are located in a substantial open land setting, and through the consideration of relaxation of area, bulk, yard, dimensional and other zoning ordinance standards in order to accomplish specific planning objectives.

This flexibility is intended to reduce the visual intensity of development; provide privacy; protect natural resources from intrusion, pollution, or impairment; protect locally important animal and plant habitats; preserve lands of unique scenic, historic, or geologic value; provide private neighborhood recreation; and protect the public health, safety and welfare.

Such flexibility will also provide for:

- The use of land in accordance with its character and adaptability;
- The construction and maintenance of streets, utilities and public services in a more economical and efficient manner;
- The compatible design and use of neighboring properties; and
- The reduction of development sprawl, so as to preserve open space as undeveloped land.

Amendments and revisions to an approved RUD plan shall require all procedures and conditions that are required for original submittal and review for amendments that are considered "major changes". The addition of land area is considered a "major change", so full review of the ordinance standards is necessary at this time.

The ordinance states that an RUD shall include detached one-family dwelling units, as is proposed in this phase. The applicant has not proposed any attached units, clubhouses, churches, schools or other uses that may be permitted as a part of the proposed development phase. While a variety of housing types is expected in an RUD, the overall density generally shall not exceed the density permitted in the underlying zoning districts. The applicant has provided a statement that the proposed density will increase from 0.89 units/acre to 0.96 units/acre if the RUD Amendment is approved. The Island Lake Development is a combination of R-1, One Family Residential, and RA, Residential Acreage zoning.

#### Current Proposal to Add land to the Approved RUD

Late last year, the applicant submitted an RUD Plan, RUD Amendment and Preliminary Site Plan showing 75 single-family residential units. The Planning Commission held a public hearing on December 12, 2012 for the submitted RUD Plan. Relevant meeting minutes are attached. At that hearing several members of the public expressed concerns. Staff initially recommended denial of the plans due to a number of deficiencies in the submittal. Following the first staff review and the subsequent Planning Commission meeting, the applicant provided the required 'technical' items listed in the RUD ordinance, including a statement regarding the proposed mechanism to assure the permanent preservation and maintenance of open space areas and a large scale aerial photo of the area. The applicant also submitted a written explanation with exhibits that detailed how the proposed expansion would meet the standards and intent of the RUD Ordinance. Primarily due to deficiencies in the



application submittal requirements, the Planning Commission postponed consideration and adjourned the public hearing to a date to be determined.

The applicant subsequently submitted a revised RUD Plan, RUD Amendment and Preliminary Site Plan proposing 74 single-family units (1 fewer than previously proposed). The eliminated unit has been converted to open space and parkland and the applicant has offered to contribute \$25,000 to the Island Lake Homeowner's Association to be used for the expansion of the existing swimming pool deck. The applicant has also included several features to aid pedestrians, including a sidewalk connection to the proposed Dinser Drive sidewalk, a crosswalk on Wixom Road and the construction of approximately 928 feet of missing sidewalk within the Wixom Road right-of-way on the excluded property south of the proposed development.

#### Ordinance Standards for consideration of an RUD

Staff provided a number of comments in the review letters regarding the various criteria provided in the Zoning Ordinance for review of an RUD. The Planning Commission and the City Council are asked to weigh the items noted in the staff and consultant review letters against the standards of the ordinance when determining whether it would be appropriate to include the additional land into the approved Island Lake RUD. Given that staff is recommending approval of the inclusion of the subject property in the existing Island Lake RUD, it is staff's opinion that the applicant has met the ordinance requirements when the entire RUD is taken into account.

For example, the standards of the RUD ordinance seek to find a balance between traditional ordinance standards for lot area, width and setback requirements, natural features impacts, and the public interest:

"Whether any proposed deviations from the area, bulk, yard, and other dimensional requirements of the zoning ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area."

In this case, the applicant is requesting deviations from ordinance standards to allow a reduced lot size and width and to allow a lesser side yard setback. Planning staff is of the opinion that the reduced lot size and width does not directly affect the natural features on the site any differently than traditional development under the current zoning. Additionally, both wetlands on the site are relatively small, with Wetland A being non-essential and not requiring any permits from the City for proposed impacts. The applicant has proposed to save the highest-quality trees (black walnuts along Dinser Drive) on the site at the request of the City. The applicant has met the requirements of the ordinance in order to remove other regulated trees on the site.

A second example from the ordinance relates to reduction in lot size and preservation of open space:

"Whether the proposed reductions in lot sizes and setback areas are the minimum necessary to preserve and create open space, to provide for school

and park sites, and to ensure compatibility with adjacent and neighboring land uses."

The applicant has proposed a reduction in lot size and width that is similar to a good portion of the lots within the existing Island Lake of Novi development. The proposed lot sizes would be compatible with the Island Lake Vineyards Phase 3C directly adjacent to and north of the subject property.

While more than 50 percent of the overall Island Lake property is maintained as "open space", the following open space calculations are provided solely for this phase (excluding required building setbacks buffer areas):

Ponds:	1.62 Acres
Pocket Park Area:	0.27 Acres
Perimeter, adjacent to the ponds and units 1-6, walk connections:	<u>3.09 Acres</u>
TOTAL OPEN SPACE:	4.98 Acres

This amounts to about 12 percent of the total area within the Island Lake Meadows Phase. As with the remainder of the Island Lake of Novi Development, the open space will ultimately be "owned" by the Homeowner's Association.

A third standard from the ordinance relates to the allowance for the increase in the total number of dwelling units permitted with RUD approval, when compared to conventional development:

"Whether any detrimental impact from the RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of school and park facilities that will result from the RUD."

The applicant has indicated that the total number of dwelling units provided with the addition of this phase is still within the total number allocated with the initial approval of the RUD (858 units planned or built, existing RUD agreement allows up to 884 units). Throughout the development of the Island Lake project, fewer units were built than originally contemplated. Toll Brothers subsequently acquired additional land that was not included in the initial RUD in order to accommodate the construction of additional homes in a couple of instances. A similar process of review and recommendation by the Planning Commission and approval by the City Council was followed to allow those phases to be added or altered. The proposal being presented at this time is to add additional land to further accommodate the density that was initially approved. While it is left to the discretion of the Planning Commission and City Council to weigh the standards of the ordinance against the relative benefit of the Conceptual plan, it is staff's opinion that the inclusion of the subject property into the existing Island Lake RUD is appropriate.

#### Planning Commission Recommendation

The Planning Commission held a second public hearing on February 13, 2013 and has recommended approval of the revised RUD plan. At an upcoming meeting, the City Council will be asked to consider whether the proposed additional phase may be

added to the approved Island Lake RUD. Ordinance standards for this discretionary decision will be included in the packet for the City Council's consideration. If the RUD Amendment is approved by the City Council, amended RUD documents will be considered for approval, followed by site plan approval in the usual course.

### **GFS Marketplace**

The applicant is proposing to construct a 16,000 square foot GFS Marketplace retail store on an outlot near the northeast corner of the Twelve Mile Crossing at Fountain Walk shopping center. This 2.15 acre area had been set aside for future development when the site was initially developed as a shopping center. Please see the attached site plan.

A free-standing retail store is permitted in the RC, Regional Center Zoning District when it is part of a planned commercial shopping center. Approval is subject to a number of conditions, including the standards for Special Land Use approval. A Community Impact Statement and Traffic Study are required (regardless of site size). In this case, the applicant is requesting a waiver of both documents. Staff supports the waiver of the Community Impact Statement, given the relatively small amount of retail space being added when compared to the existing retail space in the area.

Staff supports the wavier of the Traffic Study, consistent with the waiver standards of the ordinance:

- a. The existing Level of Service (LOS) along roadways will not drop below LOS C as a result of the proposed development;
- b. The existing LOS along roadways will not be significantly impacted by the proposed development;
- c. A similar Traffic Study was previously prepared and approved for the site.

The applicant has proposed splitting the parcel off from the larger 67.21 acre shopping center parcel following site plan approval. In anticipation of the parcel split, the Planning review has noted that the applicant will need to receive variances from the Zoning Board of Appeals for deficient building setbacks (100 feet required, 65 feet provided in the eastern yard, and 28 feet provided in the southern yard). A related variance for deficient parking lot setbacks in the same yards will also be required, due to the continuation of the parking areas with the shopping center development. The applicant has indicated that while it is the intention to split the parcel for ownership purposes, the new store will use existing curb cuts and driveway access within the existing Twelve Mile Crossing at Fountainwalk development.

The applicant is also seeking a Section 9 Façade Waiver for the overage of C-brick and split-faced CMU, and the underage of brick on the building. Prior to the Planning Commission meeting, the City's façade consultant recommended support of the waiver provided that additional articulation and interest is provided on the east and west building facades. The applicant has submitted revised elevations which are included in the packet as color renderings.

The following items have been changed and /or added since the Planning Commission's review of the matter:

- The parapet on the east wall was raised in the middle three bays and a brick soldier course was added.
- The parapet in the middle panel of the west wall was raised and a brick soldier course was added on the panels on either side of the middle panel.
- A brick soldier course was added to two panels on the north wall.

Staff believes the proposed changes add articulation and adequate visual interest to the facades in question so as to meet the recommendation of the Planning Commission.

The Planning Commission held the required public hearing on the Preliminary Site Plan, Special Land Use and Storm Water Management plan and has recommended approval. The City Council will be asked to consider this request at an upcoming meeting.

c     Clay Pearson, City Manager  
       Victor Cardenas, Assistant City Manager  
       Charles Boulard, Community Development Director  
       Tom Schultz, City Attorney

# Toll Brothers

America's Luxury Home Builder™

March 6, 2013

Ms. Barb McBeth  
Deputy Community Development Manager Director  
City of Novi  
45175 West 10 Mile Rd.  
Novi, MI 48375

Dear Ms. McBeth,

Factually incorrect information has been circulating regarding Toll Brothers' proposed "Meadows of Island Lake" project. We thought it would be beneficial to set the record straight in advance of the upcoming Novi City Council meeting where the Island Lake RUD amendment will be considered.

## Lot size

There has been some confusion about the proposed lot size. Nearly all of the twenty four residents who spoke at the first public hearing sited "small lot size" as a concern. In addition, the Novi News echoed this error in its coverage. To be clear, Toll Brothers is NOT proposing smaller lots in this phase of Island Lake. The lot widths range from 90' minimum to 148' maximum width. The average lot width is 106' wide. The lot areas range from 12,000 SF up to 28,700 SF.

1. Compared to the existing Island Lake lots the proposed Meadows lots are exactly the same as our "Executive" lots. There are 268 executive lots in the existing community. In other words, the proposed Meadows lots are the same size as 34% of the existing Island Lake lots.
2. Compared to the entire range of lot widths allowed at Island Lake (28' wide townhomes to 150' wide lots) these lots fall exactly in the middle and have been our most popular and most requested offering in the existing development. In other words, 34% of the homesites in Island Lake are smaller than the proposed Meadows lots and only 32% of the homesites in Island Lake are larger than the Meadows lots.
3. When compared to "*The Vineyards*," the existing Island Lake of Novi section directly north of the Dinser property, the proposed "Meadows" lots are slightly LARGER. Both are "Executive" lots with 90' minimum lot width, but the Meadows average lot width is 106' while the Vineyards average is only 94' wide. We met for several hours with the Vineyards residents who attended the first public hearing and demonstrated this fact to them. They seemed to be satisfied with the clarification, and none of those residents returned for the second public hearing that was held. Only three residents attended the second public hearing as opposed to 24 at the first. We attribute this to our efforts to improve our plan and better inform the residents.

4. Residents from Pebble Ridge also expressed concerns about “smaller lots.” When compared to lots in Pebble Ridge, our lots average 106’ wide and theirs are typically 100’ wide. Just considering Meadows lots along Dinser Drive, our average lot width is 98’ and Pebble Ridge has 100’ wide lots. A two-foot difference is barely visible to the naked eye. Furthermore, our setback from Dinser Drive are larger than theirs. Our closest home will be set back 69’ from the Dinser road right-of-way, while the homes in the Pebble Ridge are only set back 42’ from the Dinser Drive right-of-way. With regard to total lot size, their lots are slightly deeper, but this is because they are served by septic and well and need ½ acre minimum to make the utilities work within County health code. Even so, the four proposed Meadows lots immediately across from the two Pebble Ridge homes that front Dinser Drive are comparable in size to the Pebble Ridge lots. Two Dinser lots directly across from Pebble Ridge were split off to accommodate the existing homes and are approximately one acre in size. The average Pebble Ridge lots are half acre. In addition, Meadows lots 35 and 36 are 20,715 SF and 28,719 SF respectfully. The Pebble Ridge corner Lots at Dinser Drive are 27,000 SF.

#### Density

The Meadows of Island Lake will not increase the total number of units allowed in the island lake development.

1. The total number of units approved in the original 1998 RUD was 876 homes. If the “Meadows” is constructed the total number of ACTUAL units in the Island Lake RUD will be 858. We are still below the original approved number of units. Essentially, by adding 40 acres, in addition to the 15 Acres previously added, Toll is diluting the overall density. The dilution occurs because we are adding more land but not increasing the total allowable units.
2. There was an error printed in the Novi News. Toll was not denied a request to increase the total allowable units from 884 to 916. A proper understanding of this critical concession is necessary to appreciate the effective dilution of the overall ILN RUD density.
  - a. Under a prior 22 unit expansion of the RUD (Phase 5C in 2006) the Novi City Council approved an 8 unit increase to the total allowable units in the RUD (from 876 to 884) based on the underlying zoning of the added 10 Ac property at that time.
  - b. In the current case, Toll initially requested a similar 32 unit increase based on the underlying zoning of the Dinser property. The Novi Planning staff felt an increase at this time would not benefit the overall RUD. As a result, Toll Brothers voluntary withdrew our request to increase the total allowable units. This was a major concession and further demonstrates our willingness to cooperate with staff planners.

## Amenities

1. All the required amenities for the RUD have been installed. When the RUD was approved these amenities were planned to accommodate 876 homes. Over that past 12 years Toll has voluntarily added even more amenities that were not required. These additions include the clubhouse, swimming pool, tennis courts, and some added offsite safety path.
2. The Meadows proposal now includes even more added amenities, including:
  - a. A pocket park where the Vineyards and the Meadows phases abut one another. Several residents indicated a desire for an additional park they could share because the kids played in the street. We added a park with a play structure to accommodate this request.
  - b. Toll proposes to provide sidewalks on both sides of Wixom road so residents can conveniently utilize the signalized crossing at 10 mile and Wixom road. Safety and better connectivity was a concern of the existing ILN residents east of Wixom road. Adding these offsite pedestrian paths increases the overall connectivity of Island Lake as well as the overall City of Novi walkway network, which is a major goal of the Novi planning.
  - c. As a result of feedback from the public hearings and follow up meetings, Toll revised the configuration of the detention basin to accommodate the desire for a wet bottom pond so skating can potentially occur in the winter.
  - d. Several residents of Island Lake were concerned about pool deck overcrowding. There were extremely limited instances last summer where the pool deck reached capacity for a short time. As a result of the expressed concern, Toll Brothers senior management met with the ILN Homeowners Association Presidents to better understand their needs and committed to funding a \$25,000 expansion of the existing pool deck.

## Community Benefit

1. Including the Meadows in the RUD allows new residents the ability to enjoy the open space, 5 community parks, several pocket parks, miles of walking trails, recreational opportunities provided by the 170 Ac lake, and all the other benefits of the well planned Island Lake community.
2. Bringing the Meadows into the RUD will allow existing residents additional park and pool deck amenities to enjoy, as well as improve the overall pedestrian connectivity and safety. Additionally, the improved road network, entry configuration, and detention pond configurations will not only improve the infrastructure effectiveness, but also provide a greater sense of inclusion for the Vineyards residents east of Wixom road.
3. Toll Brothers past contributions to the community included the donation and move of a historic barn when the Maybury's barn burned down as well as completing off-site

missing links of sidewalks. The Meadows proposal to add over 1000 LF of offsite walks, beyond the frontage walk requirements, furthers this tradition.

Toll Brothers has proven its commitment to the community and its customers over the last dozen years at Island Lake. Our amenity levels are second to none. The value and prestige we have built in the community is lasting. Our stewardship of the woodlands and wetlands is well documented.

Toll Brothers wishes to continue this tradition of excellence by adding more property so the originally contemplated number of homes in Island Lake can be accommodated. We respectfully request the Novi City Council consider this modification of the RUD.

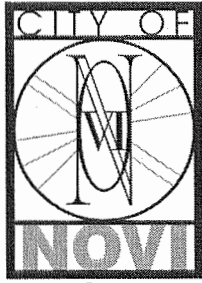
Sincerely,

A handwritten signature in black ink, appearing to read "Michael T. Noles". The signature is written in a cursive, flowing style.

Michael T. Noles  
Vice President  
Land Development.



**PLANNING COMMISSION  
MEETING MINUTES – EXCERPT  
FEBRUARY 13, 2013**



# PLANNING COMMISSION MINUTES

CITY OF NOVI

Regular Meeting

**February 13, 2013 7:00 PM**

Council Chambers | Novi Civic Center | 45175 W. Ten Mile

(248) 347-0475

## CALL TO ORDER

The meeting was called to order at or about 7:00 PM.

## ROLL CALL

**Present:** Member Greco, Member Lynch, Member Prince (arrived at 7:11), Member Gutman, Member Zuchlewski

**Absent:** Member Anthony, Chair Pehrson

**Also Present:** Barbara McBeth, Deputy Director of Community Development; Gary Dovre, City Attorney; Kristen Kapelanski, Planner; Mark Spencer, Planner; David Beschke, Landscape Architect; Adam Wayne, Engineer; Doug Necci, Façade Consultant; Rod Arroyo, Traffic Consultant

## PLEDGE OF ALLEGIANCE

Member Lynch led the meeting attendees in the recitation of the Pledge of Allegiance.

## APPROVAL OF AGENDA

Moved by Member Lynch, seconded by Member Zuchlewski:

## VOICE VOTE ON THE AGENDA APPROVAL MOTION MADE BY MEMBER LYNCH AND SECONDED BY MEMBER ZUCHLEWSKI:

**Motion to approve the February 13, 2013 Planning Commission Agenda. Motion carried 4-0.**

## PUBLIC HEARINGS

### 1. THE MEADOWS OF ISLAND LAKE OF NOVI, JSP12-65

Public hearing at the request of Toll Brothers, Inc. for the recommendation to City Council for approval to include the subject property in the existing Island Lake of Novi Residential Unit Development (RUD) and modifications to the RUD concept plan. The subject property is 40.68 acres in Section 20 of the City of Novi and located near the northeast corner of Ten Mile Road and Wixom Road. The applicant is proposing a 74 unit development that would be Phase 7 of the existing Island Lake of Novi development. The applicant has also proposed to modify the number of units permitted in the RUD Agreement from 884 to 916 in order to allow for the potential future expansion of the development.

Members Lynch and Prince disclosed that they are residents of Island Lake of Novi but that this will not interfere in their judgment regarding the public hearing.

Planner Kapelanski said the applicant is proposing to add a 40.68 acre parcel to the existing Island Lake of Novi Residential Unit Development or RUD. The subject property is located near the northeast corner of Wixom Road and Ten Mile Road, bordering Dinser Drive and is currently zoned RA, Residential Acreage. The subject property is zoned RA, Residential Acreage and surrounded by RA zoning. The Future Land Use map indicates single-family uses for the subject property with single-family and park uses planned for the surrounding properties. There are regulated woodlands on the western side of the property and several high quality trees along Dinser Drive that are not called out on the natural features map. Those high quality trees will be preserved. There are also regulated wetlands on the property, although those are not identified on the natural features map. These two small wetland areas are located near the center of the property and near the center of the Ten Mile Road frontage.

The proposal has been revised since the previous public hearing, held at the December 12<sup>th</sup> Planning

Commission meeting. The proposed development area would connect into the existing Vineyards pod of Island Lake to the north and would line up with the existing development entrance off of Wixom Road. The applicant has revised the proposal now showing 74 lots instead of the previously proposed 75 lots. The eliminated unit has been converted to open space and parkland and the applicant has also offered to contribute \$25,000 to the existing homeowner's association in order to expand the existing pool deck. The applicant has also included features to aid pedestrians including a sidewalk connection to the proposed Dinser Drive sidewalk, a crosswalk on Wixom Road and the construction of a missing link of sidewalk along Wixom Road. The required application materials that were previously omitted have now been submitted and are satisfactory.

Planner Kapelanski continued noting the planning review recommends approval of the proposed RUD plan and amendment to allow development of the subject property but does not recommend an increase in the overall number of allowable units for the entire development as requested by the applicant. The Planning Commission should consider the various standards from Section 2402 outlined and listed in the planning review letter. The applicant has requested a City Council modification of lot size and width and a reduction in the required building setback as well. All other reviews recommend approval of the proposed plan. There are two landscape waivers required for the discontinuation of the berms in the location of existing vegetation and the lack of a berm along the proposed storm basins. Both are supported by the staff. Any substantial amendments to an existing RUD must follow the same process as a new RUD plan which requires the approval of the City Council after review and recommendation from the Planning Commission.

Mike Noles, the Land Development Vice-President for Toll Brothers said he's pleased to be back before the Commission with a unanimous recommendation for support from all of the reviewers. As Ms. Kapelanski mentioned, the recommendation came with a caveat that we do not increase the total number of units allowed within the Island Lake of Novi RUD. We have formally agreed to that condition and waved the increase. We believe that the plan that is before you today is superior to the one that we had in December. A park was added next to lot number seven that was at the request of some of the existing residents to the Vineyards pod to the north. We've met with several folks from both the main property of Island Lake and the property to the north and have made improvements to the plan to try to accommodate their concerns.

Chair Gutman opened the public hearing.

Tom Farley, a resident of Pebble Ridge Estates Homeowners Association, came forward. His main concern is the lot size of this proposed development. When he and his wife purchased our property in 1991, RA stood for Residential Acreage. The intent was that this property would be larger estate size lots which are consistent with the Master Plan. West of Beck Road was decided to be larger lots and the proposed development has a very high percentage of lots that will come in barely over a quarter acre. How can the City and the Planning Commission approve such a drastic reduction that will have such a negative effect on long-term residents that have bought into the City and been supportive of the City over the years? Also, the deal that Toll Brothers did when they originally developed Island Lake was negotiated at the time. I don't see how anybody would expect the city to now re-modify that original agreement from years ago to now incorporate and justify smaller lot sizes in this development. Even though it's connecting to the existing Island Lake properties, it truly is a stand-alone development that's being done today years after the other build out that was originally proposed. Other potential developers probably passed on this property thinking that they were going to be held to half acre lot sizes. This is preferential treatment to Toll Brothers that will negatively impact the City and the long-term residents.

Tim Lesowski of Island Lake said he was here at the previous public hearing and feels a little bit patronized by the modifications that they've made. They dropped one lot from the original 75 to 74 to

create a park that will be the furthest point away from the majority of the residents of the area. I feel patronized because we all came in and talked about lack of green space and small lot sizes and other things. They did nothing about the lot sizes. If you take a look at the presentation that is on the City's website, you will see the range of the different lot sizes of the entire development. If you take a look at the overall picture that they have of Island Lake, you'll notice a couple smatterings here and there of smaller lot sizes depending on the way the streets are laid out and everything, but just a very small amount. But if you take a look at the homes that they're now adding on in the new area, every single one of them falls under 12,000 square feet. Nobody seems to want to look at this for what it is as opposed to just a way to get a lot more money out by making minimal changes to the plans. I love the neighborhood I live in. I truly love the house that they built. Jason was an amazing person to work with to get it done and build it just the way we wanted it to. But I'm really ashamed at Toll for coming in and putting this in and now making me second guess the decision that I made.

Betty-Jane Blossfeld, resident of Pebble Ridge Estates said she agrees with the people who spoke already. The main point I wanted to convey is that we need to stop looking at this as an Island Lake development and look at it first for what it is, the Dinser property. We bought here 22 years ago with the intention that if Dinser's ever chose to sell; we knew it was going to be a development with country style lots. There are so many places in Novi that we could have chosen. It's not like the other smaller lot sizes didn't exist. We could have chosen those but we did not. We didn't choose to go to Island Lake when they opened. We chose to stay in a country style sub. I think we need to stop looking at this as an Island Lake development to be consistent with Vineyards and starting looking at it being consistent with the area with which it was planned all along.

No one else wished to speak and Member Greco read the correspondence into the record.

The first response is from L Steve Wiener of Lestlyde Limited Partnership in Detroit saying he supports the amendment fully.

The next comment is from Susan Hall an Island Lake resident saying the current boathouse facility cannot accommodate additional homes and traffic congestion on 10 Mile, Wixom and Beck Roads are her concerns.

The next response form is an objection from Nicole Heur of Island Lake that says we at Island Lake do not wish for this development to be part of our neighborhood, as our amenities are already reaching capacity and adding additional homes will increase the frequency of amenities reaching capacity. If the development is built as a separate neighborhood that does not share the same amenities, then I do not object to the development. As the proposal reads, I do object for the Island Lake of Novi RUD to be altered in order to add this development.

The next objection is from Armen Korbodian stating he is opposed to Toll Brothers adding more homes to the Island Lake of Novi development because the pool and the boathouse is already crowded in the summer and additional residents will add to over-crowding. He is also concerned that if Toll Brothers continues to use the existing model home it will continue to add traffic to the subdivision. The original plan for Island Lake of Novi is complete and it is time for Toll Brothers Construction to cease development at this site.

Sean Stevenson of Island Lake also objects saying he objects until Toll Brothers confirms the pool and pool deck area of the boathouse will be expanded to accommodate an already over-crowded space.

The next objection comes from Dan Heur of Island Lake stating he objects because adding more homes to this neighborhood without also adding amenities such as the community pool will over-crowd these amenities and make it difficult to be accessible to all residents.

The next objection is the letter from Betty Jane and Dan Blossfeld on February 7<sup>th</sup>, 2013 stating that this plan could be acceptable given some conditions and modifications.

Paulette Alia objects and is requesting cost comparisons of the ongoing maintenance of the Dinser Drive road surface.

The final letter is from Raymond and Karen Bunio from February 10<sup>th</sup>, 2013 stating an objection to this current plan which needs some conditions and modifications.

There was no additional correspondence. Chair Gutman closed the public hearing.

Member Greco said last time this plans was here there were a lot of comments from many of the residents, mostly Island Lake residents, regarding the amenities just like the response forms provided regarding mostly the pool and the concerns regarding the additional residents to Island Lake. At the time, those concerns seemed like more of a consideration between the Island Lake residents and Toll Brothers that still seems to be the case regarding those specific concerns. However, there are other concerns regarding the density of the plan that is there. The characterization by some of the residents tonight is correct that this is not really part of the original plan but an add on. I do have concerns with regard to the density and with individuals both part of Island Lake and the other individuals residents to the east. Their concerns in purchasing in an area where they expect larger lot sizes is something that I think is legitimate. It doesn't seem like the large number of lots proposed fits with the area.

Member Lynch confirmed 884 homes were already approved in this area for the RUD and right now there are about 773 and Toll Brothers is requesting is additional 74 which would come out to 847 so it's still technically under the allowable number of units in the original RUD. There has been so much discussion about amenities. The last packet gave an amenities breakdown from the original RUD. I'm just curious as to which ones have been developed and which ones haven't because when I look at the original amenity matrix it looks like you still have another park or something to put in there and that might alleviate some of the concerns.

Deputy Director Barb McBeth stated staff provided that amenity matrix again on the table per the request of Member Lynch.

Member Lynch said there seems like there's a lot of consternation with people worried about getting to the pool and having enough parks.

Mike Noles said we have built all of the amenities that were required by the original RUD plus the boat launch, the clubhouse and the swimming pool. Some of the parks that were constructed are passive and some are active. All of the park areas have been constructed and all of the park amenities have been met. The total number of units was very important as the development is still underneath the total number of units that were originally approved even though the level of amenities and the amount of property has been increased. This is the third time this project has been before the Planning Commission and City Council where additional property was added but the number of units was not increased. So the same rationale that allowed the approval of the original RUD back still holds except for one basic difference in that there is more overall property and acreage than the original proposal. The number of units hasn't changed and the amenities only keep getting better.

Member Lynch said the design of the development flows well and a person would never guess there were so many homes in the area. The intent of the RUD is to keep a rural feel in the area. Will there be small parks and open space throughout the new development area like the current Island Lake development?

Mike Noles responded that yes it will be very similar. The residents in the vineyards to the north specifically requested some area for the children to play because they're playing in the streets. It's difficult for them to access some of the existing parks so the new park area will have a play structure and some open space where the kids can play. As a parent, if you're going to let your kids go to the pool or go to some of the other parks, it's a nice benefit to know that they can go on sidewalks all the way to the traffic light and cross down at the traffic light in addition to the crosswalk that's available across the street.

Member Lynch said you can spend your whole life in Island Lake. As you age, you can buy another home within the community. Does the new development fill the gap that is in that progression? If you look at the progression from when a person first gets married until they retire, there's a hole there in the price ranges that's missing.

Mike Noles said this lot size is smack dab in the middle of the diverse lot sizes that are offered. There are two different sized attached products. There's a 28 foot wide townhome and then there's a 32 foot wide townhome for an attached, very dense product. Then this is the smaller of the detached individual lots. There are two lot sizes that are larger. So you've got two smaller and two larger, so this is right in the middle. The bulk of the lots, I think there's around 265, have similar lot sizes. It's not that we're introducing a new lot size. This is similar to what is there. But yes it is smack-dab in the middle of the offerings.

Member Lynch said just having the ability to stay in one school system and be able to grow right in that neighborhood is a nice option for residents. What is the issue with pool capacity?

Mike Noles said the issue after talking to the residents and looking at the data this past summer is not the pool itself, it's actually the pool deck because everybody wants to have big lawn chairs and position themselves so they're in the sun. So expanding the pool deck is what is proposed. We've actually been working with the committee to come up with different plans on how exactly to expand that and include some grass area and expand the fence basically. Once you're inside the pool deck, that's been the capacity issue, it's never actually about the pool itself.

Member Lynch said that seems to address the issue of the pool. The lot size is hard for me to comment on. I'm more concerned about the intent of the RUD and trying to have a large area of the City that's still low density, upscale and somewhat rural area. I like the idea of a family being able to grow in the same place and in the same subdivision. I'm not as concerned about the number of lots as long as it fits into the community and is not a detriment. The roads seem to be adequate. I read the traffic consultant's report, and traffic seems to be adequate. I do know that there is a concern with the traffic on Napier and Ten Mile which will be addressed with the traffic light pretty soon. From an infrastructure standpoint, it looks like it meets all the standards. As far as the 74 lots, I do appreciate taking out one of the lots and putting a play scape in there.

Member Lynch said I'm struggling with the lot size. I reside in the community so I understand some of the concerns that the community has expressed in terms of the density. Is there any reason why you have smaller lot sizes even though you have more acreage?

Mike Noles said the lot sizes aren't smaller than the Island Lake of Novi lot sizes. The original RUD approved a variety of lot sizes including the attached product all the way up to the signature product on the lake which were 150 foot wide lots. So it approved a matrix of lot sizes and this is one of the same lot sizes. A similar product was constructed in Phase 5C. In that particular case, that was a 10 acre parcel that we brought in and put 22 – 90 foot lots on it. The 90 foot lot is one of the approved lot sizes within the existing Island Lake RUD. The underlying acreage is approximately .8 units per acre overall. The Planning staff has requested that we do not increase the total number of units and stay within the original approval. So essentially it's the same development with 40 more acres. That's the difference between

the last phase and this phase. That's why I say we're really diluting the acreage but not the total count so our density is going to be less.

This project, for this number of units, was approved given the level of amenities that we have already built and exceeded. It's appropriate for it to be part of the original RUD because we're within the original parameters and these new residents will now have the benefit of a 170 acre lake and 20 miles of pathways and the ability to go to all of the five parks. I really think we need to look at this as a whole and not just a separate, standalone piece of property.

Member Prince said he can appreciate some of the concerns that have been expressed by the community as it relates to the smaller lot size. You're literally building in my backyard and for the number of years that I've been there I've always had all this expansive open space and now I'm watching these houses go up with the smaller lot sizes and the large space has gone away. On a daily basis, it's disappearing. So what I'm used to is no longer there. It does have an effect on your enjoyment of your house and your appreciation of what you bought before and what you thought you were going to have for a long period of time. That does have an appreciable effect on what you've invested in and on what you thought you had. So I could understand why there is a lot of concern in the community about these smaller lot sizes and how it's going to affect their property. That's where my concern is because I'm experiencing it myself on a daily basis.

Mike Noles said he recently re-read the minutes of the meeting back when the original project was approved and there were the same objections raised at that time. There was some extensive conversation at the City Council meeting about that and the overriding, guiding principal that they used when they approved it was that the lots that are immediately adjacent don't have to be the exact same kind of lots and that you have to look at it as a whole and a variety of lot sizes is a better planned development than one that is homogeneous where all of the lots are the same size. With respect to the Terra Del Mar and the Langley Court lots, not to diminish your point, because I appreciate what you're saying. There used to be an open field there and it does change the feel of it when there are homes there but in terms of the size of the lots themselves, they both the executive line that are between 90 and 96 foot wide frontages. So they're the same size lots on both of those particular streets. I agree with the person who spoke before about the reduction of one lot from 75 to 74 is little change but the point to that was to make room to be able to add the park and green space and be able to change the basin configuration a little so that the lots that are there existing have some of the things that they requested at the public hearing.

Member Zuchlewski said he heard what everybody was saying and there's a lot of sensitivity in this project. It seems to me that the developer has done an excellent job. By that, I mean not only on the original development but in trying to reach a compromise on this development. The lots are not huge but there's a need for development in the City. I look at how jobs are going to be created and parks are going to be developed. We've been trying to do all these things for Novi to keep the City viable and lively. We're growing. This development will help the tax base. It's very well thought out.

Chair Gutman said when you hear some of the people speaking and read some of the letters it's tough not to be immune to the emotion that it associated with this. In looking at it objectively, at some point in time, the community approved an RUD. If Toll came and said we want to do the same plan that was presented previously, I would be adamantly opposed. But what we as Planning Commission members focus on is does it fall within what's approved and if not, are those exceptions reasonable and fair. So looking at the exceptions that are out there, the density is going from an allowed .97 units per acre to .96. So I look at that as a deviation that you can't easily dismiss but it seems like a modest variation. There are a couple other waivers that are being requested like discontinuations of berms and locations of existing vegetation and the lack of berm adjacent to proposed storm basins. As I went through the exceptions that are out there, I couldn't find a reason that those are not acceptable. As much as I

understand the discomfort that may be caused by not having absolutely everything in the way that people would like it, I do think there is a very good compromise here. A lot of work went into this by Toll Brothers which we all appreciate.

City Attorney Dovre said the lot size and the density are two separate issues although they are being talked about as if they're the same. The RUD agreement established a maximum density for whatever property was in Island Lake. I think that number is at 884. If property is added into the RUD, as the proposal is for, that allows the property being added in to be considered for a reduction in lot size. As I understand it, this property is zoned RA, one acre minimum lot size. If it's added into the RUD, the applicant can ask the City Council to reduce that lot size. That is a separate issue from the overall density for the project. It's not as if because allowing these 74 lots is still under the 884 that the City Council has to approve it or that the City Council even has to consider that fact in making this decision. Just because this proposal won't go over the allowed 884 for the development, that doesn't dictate or tie any one's hands when it comes to whether you take the minimum lot size for this RA property from an acre down to 12,000 square feet on some of the lots. They are different considerations.

Member Lynch confirmed the lot size and the density are two completely separate issues.

City Attorney Dovre said they are independent considerations. The first thing that has to happen is a discretionary decision to allow the property into the RUD. That's a City Council call and they're looking for a recommendation from the Planning Commission on that. The second call that City Council has to make is if they want to waive the underlying minimum lot size. While I'm sure the developer would submit as they have to you that the City Council should do that because they're adding 40 acres and staying under the 884, I don't read the ordinance as that density argument mandating a decision on the lot size waiver. They're independent considerations.

Deputy Director Barb McBeth said there are a lot of provisions in the ordinance. One of the items related to the lot size is that the City Council may modify the lot area requirements where the modification results in the preservation of open space for the purposes set forth in the ordinance and when a genuine variety of lot sizes are provided. That's one of the reasons we asked the applicant to provide that map that shows the variety of lot sizes.

Moved by Member Lynch and seconded by Member Zuchlewski:

**ROLL CALL VOTE ON THE RUD AMENDMENT APPROVAL MOTION MADE BY MEMBER LYNCH AND SECONDED BY MEMBER ZUCHEWSKI:**

**In the matter of The Meadows of Island Lake of Novi, JSP12-65, motion to recommend approval of the Amended Residential Unit Development with the total number of units permitted in the RUD Agreement not to exceed the currently permitted 884 units and subject to and based on the following findings:**

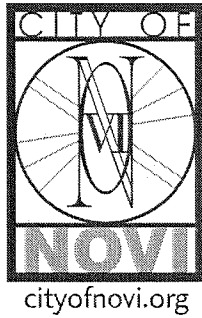
- a. **The site is appropriate for the proposed use;**
- b. **The development will not have detrimental effects on adjacent properties and the community;**
- c. **The applicant has clearly demonstrated a need for the proposed use;**
- d. **Care has been taken to maintain the naturalness of the site and to blend the use within the site and its surroundings;**
- e. **The applicant has provided clear, explicit, substantial and ascertainable benefits to the City as a result of the Amended RUD;**
- f. **Relative to other feasible uses of the site:**
  - a. **All applicable provisions of Section 2402 of the Zoning Ordinance, other applicable requirements of the Zoning Ordinance, including those applicable to special land uses, and all applicable ordinances, codes, regulations and laws have been met;**



- b. Adequate areas have been set aside for all schools, walkways, playgrounds, parks, recreation areas, parking areas, and other open spaces and areas to be used by residents of the development;
- c. Traffic circulation features within the site and the location of parking areas have been designed to assure the safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets;
- d. The proposed use will not cause any detrimental impact on existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfares level of service;
- e. The plan provides adequate means of disposing of sanitary sewage, disposing of stormwater drainage, and supplying the development with water;
- f. The Amended RUD will provide for the preservation and creation of open space and result in minimal impacts to provide open space and natural features;
- g. The Amended RUD will be compatible with adjacent and neighboring land uses;
- h. The desirability of conventional residential development within the City is outweighed by benefits occurring from the preservation and creation of open space and the establishment of park facilities that will result from the Amended RUD;
- i. Any detrimental impact from the Amended RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of park facilities that will result from the Amended RUD;
- j. The proposed reductions in lot sizes and setback areas are the minimum necessary to preserve and create open space, to provide for park facilities, and to ensure compatibility with adjacent and neighboring land uses;
- k. The Amended RUD will not have a detrimental impact on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost;
- l. The applicant has made satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements
- m. The applicant has made satisfactory provisions for future ownership and maintenance of all common areas within the proposed development; and
- n. Proposed deviations from the area, bulk, yard, and other dimensional requirements of the Zoning Ordinance applicable to the property enhance the development, are in the public interest, and consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area;
- g. City Council modification of proposed lot sizes to a minimum of 12,000 square feet and modification of proposed lot widths to a minimum of 90 feet as the requested modification will result in the preservation of open space for those purposes noted in Section 2402.3.B of the Zoning Ordinance and the Amended RUD will provide a genuine variety of lot sizes; and
- h. City Council deviation to allow a reduced side yard building setback from 10 feet to seven feet in several instances with a finding that:
  - a. If the deviation were not granted, it would prohibit an enhancement of the development that would be in greater public interest;
  - b. Approving the proposed deviation would be compatible with existing and planned uses in the surrounding area;
  - c. The proposed deviation would not be detrimental to the natural features and resources of the affected property and surrounding area, or would enhance or preserve such natural features and resources;
  - d. The proposed deviation would not be injurious to the safety and convenience of vehicular or pedestrian traffic; and
  - e. The proposed deviation would not cause an adverse fiscal or financial impact on the City's ability to provide services and facilities to the property or to the public as a whole.

This motion is made because the plan is otherwise in compliance with Article 3, Article 24 and Article 25 of the Zoning Ordinance and all other applicable provisions of the Ordinance. *Motion carried 3-2.*

**PLANNING COMMISSION  
MEETING MINUTES – EXCERPT  
DECEMBER 12, 2012**



# PLANNING COMMISSION MINUTES

CITY OF NOVI

Regular Meeting

**December 12, 2012 7:00 PM**

Council Chambers | Novi Civic Center | 45175 W. Ten Mile  
(248) 347-0475

## CALL TO ORDER

The meeting was called to order at or about 7:00 PM.

## ROLL CALL

**Present:** Member Anthony, Member Greco, Member Lynch, Chair Pehrson, Member Prince

**Absent:** Member Gutman, (excused), Member Zuchlewski (excused)

**Also Present:** Barbara McBeth, Deputy Director of Community Development; Gary Dovre, City Attorney; Kristen Kapelanski, Planner; David Beschke, Landscape Architect; Adam Wayne, Engineer; Rod Arroyo, Traffic Consultant

## PLEDGE OF ALLEGIANCE

Member Anthony led the meeting attendees in the recitation of the Pledge of Allegiance.

## APPROVAL OF AGENDA

Moved by Member Lynch, seconded by Member Anthony:

## VOICE VOTE ON THE AGENDA APPROVAL MOTION MADE BY MEMBER LYNCH AND SECONDED BY MEMBER ANTHONY:

**Motion to approve the December 12, 2012 Planning Commission Agenda. Motion carried 5-0.**

## PUBLIC HEARINGS

### 1. THE MEADOWS OF ISLAND LAKE OF NOVI JSP12-65

Public hearing at the request of Toll Brothers, Inc. for consideration to include the subject property in the existing Island Lake of Novi Residential Unit Development (RUD). The subject property is 40.68 acres in Section 20 of the City of Novi and located near the northeast corner of Ten Mile Road and Wixom Road. The applicant is proposing a 75 unit development that would be Phase 7 of the existing Island Lake of Novi development. The applicant has also proposed to modify the number of units permitted in the RUD Agreement from 884 to 916 in order to allow for the potential future expansion of the development.

Planner Kapelanski stated that for the benefit of the public, staff will do a brief presentation detailing the applicant's proposal. It is the staff's recommendation that the public hearing be held as advertised, but that the Planning Commission postpone consideration of the matter to a date uncertain to allow the applicant to submit and the staff to review additional information supporting the application. The applicant is proposing to add a 40.68 acre parcel to the existing Island Lake of Novi Residential Unit Development or RUD. The subject property is located near the northeast corner of Wixom Road and Ten Mile Road, bordering Dinser Drive and is currently zoned RA, Residential Acreage.

Planner Kapelanski stated that the new development area would connect into the existing Vineyards pod of Island Lake to the north and would line up with the existing development entrance off of Wixom Road. Any substantial amendments to an existing RUD must follow the same process as any new RUD plan. There are several items noted as required in the Zoning Ordinance that were not submitted with the original application. Additionally, the applicant did not provide the following: Adequate information regarding how the proposal would meet the stated intent and review standards of the RUD ordinance, updated density calculations for the entire RUD incorporating the new parcel, a summary of lot sizes throughout the RUD and sufficient justification for the requested variances. While the applicant did submit information as part of their response, staff has not reviewed that information given the short

timeframe provided. Therefore, staff recommends the Planning Commission hold the public hearing and postpone consideration of the matter to a future date to allow the applicant time to submit additional information in support of their application and to allow staff time to review that information.

Michael Knolls, the applicant came forward; he is the vice president of land development for Toll Brothers and has been with Toll Brothers for almost 16 years and has worked on the Island Lake of Novi Project for 14 years. Toll is very excited about continuing this neighborhood. We've had several meetings with staff and we're confident that we'll be able to provide that additional information that they have requested in a timely and cooperative manner. We're looking forward to working with the City and hearing any objections, concerns and suggestions that may be offered tonight and take those into consideration for any potential plan modifications.

Chair Pehrson opened the public hearing and asked if anyone in the audience wished to comment.

Tom Farley, resident of Pebble Ridge Estates Subdivision, which is east of the proposed rezoning area had a few questions in regards the reduced lot size. It isn't specified what the actual lot size will be but it certainly is going to be less than a half-acre lot, which is far less than our subdivision which has half-acre lots and was developed in 1991. It's a significant decrease in lot size for that area and we're concerned about the property values of our houses as well and the impact it would have because of squeezing so many houses in the smaller area. The development would require bringing in water and sewer to that area, which it does not currently have. Our concern is the impact on our subdivision of bringing in water and sewer lines. Will that necessitate our subdivision to tap into these lines? Additional costs would be associated with that. We'd like to not incur this additional cost.

Betty Jane Blashfield is a resident of Pebble Ridge and stated such small lots are not good for the community. We are not part of Island Lake but still I don't think the small lots sizes lend to the type of subdivision we bought into, which is more like a country sub. We don't have sidewalks. We have large lots. We have well and septic. This property was always zoned RA and we always knew that if they did sell that we'd at least have big country lots and that would be consistent with the area we bought in. We chose not to buy in other subdivisions in Novi for that reason. So I'd highly encourage you to keep the integrity of that area. We have a lot of deer crossings which I would also encourage them to continue with the green belts to allow wildlife to persist coming across those fields from east to west. Now my issue with the water is I would like access to City water. I would like to be able to tap into water. I don't think the City would force people to do that but I think they'd give them the option to. Finally, I'd strongly recommend that the grade not be raised any higher than it is now.

Tim Wisowski is a resident of Island Lake and has lived there for about a year and a half now. One of the reasons that drew us to the Island Lake area is the amount of green space that they have with the woodlands and lake. The lot size that we have is just shy of a half-acre so these lot sizes are ridiculously small. I have moved here from Westland and our lot size was bigger than some of these lots that they're proposing. So I can't imagine the type of house that they're going to put on those lots and the values that may drop across all of Island Lake. Also, another thing that I noticed is there is no commons area. They will basically be destroying a natural habitat that they have where there are deer and other animals and nothing will be replaced. Where are the kids going to play? You have a lot of houses in a very small area. To me, that would pose a safety risk for kids. This new area would draw in just the same amount of families as the street I live on and having nowhere for the kids to play with much smaller lot sizes is a problems. I'd love to see some commons areas. The proposition they have is the antithesis of everything Island Lake is supposed to be.

Chris Quaz lives on the house that backs right into the Dinsler property. I like what it is right now; it's nice to see a lot of deer in my backyard. It's very peaceful. I second the idea of seeing more commons areas. I've got four kids of my own and we really don't have any commons area there right now. The kids need

to go across Wixom to play. So with all the houses that are going in, I'd like to see a common area as well as I'd like to see what they're going to do with the street name. They changed the name right on the corner.

Kathy Drew has been a resident of Island Lake over 10 years. I am also a realtor in the area and I agree with all the comments I've been hearing from the last few speakers. I'm very disappointed in this plan. I don't feel it's fair to Island Lake residents like me. I've paid dearly for it and have paid dearly in maintenance fees for 10 years now. To have a piece of land that you knew you couldn't stop a builder from eventually building there, but I don't believe there's anyone in Island Lake that ever dreamt that a development like this could go in with these small lots and could talk about utilizing our pool and trails and lake. Once the area south of the lake was developed, the residents in the area were happy that construction is finally stopping and that things seem calm and we have seen our pool get much more crowded with the south lake development. Now to have another 75 proposed homes, it will absolutely kill the people that have used homes they are going to try to sell. There have been a lot of people that have just been waiting for the economy to improve to put their homes on the market. And now they are so thrilled that they can sell their house at a decent price. With this development, anyone in that position is now just stuck because they are now going to be competing with construction that is going to be allowed to step right in and use the amenities that make Island Lake so special. I don't understand why this is even legal for Toll Brothers to come in and never having owned this land when they originally planned Island Lake. I don't understand how they're able to come in and add more homes and just use the amenities, but that is something I'm going to check the legalities on. I don't think this plan here is fair to all the people no matter what neighborhood you're in. The west side of Novi has always had big lots and nature and this just doesn't conform at all. I had a lot of wildlife that came through my yard and once the south side of the lake developed, it drove off a lot of them. So I do think this additional construction with harm the wildlife in the area.

Shelly Trailer is a resident of Island Lake. I just don't think this area mimics what Island Lake looks like in terms of green space and lot size. What I didn't hear discussed tonight was the amenities. I recently attended our Santa party which was packed. There were too many kids in the boat house and they couldn't even hear Santa's story. So if you have this many house with this many young families coming, parties such that would have to be split up into two nights or something to accommodate all these people. I'm just concerned with the amenities and the parking spaces. Sometimes you have to park on the streets because the pool lot is full.

Scott Russo lives near the property in question. I have a couple concerns. In regards to safety, with the density of houses in this area, what will the traffic be like on the street? With 70 plus homes in such a small area, what will the traffic be like as compared to now? Also, the amount of green space and public area for the children to play in is a really big concern of mine. Right now there isn't a common area where any of our children can play. This is something that fundamentally needs to be addressed. Lastly, what types of homes are going to be built there? It's opposite of what our community has been built on in terms of lot size and home values.

Scott Novella is a resident of Island Lake. In looking at this plan, it isn't consistent with what we moved into. There is no common area provided and the density is too great. Going through our street and the adjacent streets, we probably have at least 40 children total and there is no place for them to play. Right now they play in the retaining pond area. Another concern of mine is the traffic on Wixom. Right now, since 2005 when CC went in, the traffic had substantially increased. It appears that there was a traffic study done in 2010 and I can grantee since that time the traffic has just increased greatly. Just trying to exit our neighborhood between 7 and 7:30 pm on a weekday is just unbelievable with all the traffic that's coming up Wixom road to go to CC. In addition, the Singh Development will increase the traffic further. As other people have echoed, the existing resources are really stressed within our association. The parking at the pool is unbelievable especially on a hot, summer day. When the pool is

open between July 4<sup>th</sup> and Labor Day, it makes it difficult to try and go up there. The other thing I would echo is in regards to the retention ponds. The one being proposed is enormous; I don't know any pond in our entire subdivision that is that large. At that size, it becomes a hazard to the kids. The kids play there, that's our green area, if the retention pond is going to be that large, its going to fill up. In the event that the plan does get re-drawn, I would prefer that an exit not occur off Ten Mile. On weeknights, it becomes heavily traveled and it could become a cut through.

Joe Tesarrowo is also a resident of Island Lake. I'm just a little confused. I've been told this is going to be part of Island Lake, but it doesn't look like it. We talked about the lot sizes, if it's going be part of Island Lake it should look like Island Lake with the same lot sizes, houses, landscaping and everything else. We wouldn't put a ten story apartment building there and call it Island Lake so why are we even deviating at all? I live next to the current retention wall. When we moved in that was a real pond with wildlife and another basin that we could actually skate on in the winter; it was a nice amenity. Now it's just weeds collecting trash. When you look at the size of these ponds, there is no other retention pond on Island Lake property right on the road to welcome everyone driving by, it's crazy. So is this Island Lake, because it doesn't look like Island Lake. So if we're not going to make it look like Island Lake then I suggest that the Toll family make it something else. Don't include it with Island Lake and don't include it with the amenities, which would solve a lot of problems for everybody. Right now, we should probably work together to find a way to make this look like Island Lake if it's going to go in there. Again with the number of houses, there's enough room now for common area to support 100 homes consistent with the Island Lake design and feel. This looks like just a bunch of houses crammed in trying to take advantage of the amenities and lowering the rest of our property values.

Commissioner Greco read off the correspondence that was received.

Jeffery Wagenberg objects to the proposed plan. He is concerned with the traffic because it's already getting bad and another subdivision of this size will make it much worse. He is also concerned about the probable negative effect it will have on already depressed home prices.

Timothy and Rhonda Rush object to this proposal because the water/pool may not be at capacity; however on a hot day there is never enough seating. The deck is over capacity already.

Julie and Troy Londo object to this proposal because it will put more of a strain on our amenities than we have now. People are getting turned away at the pool as it is. Also there has been a large increase in traffic at 10 Mile and Wixom Road due to Oak Pointe Church. The additional homes will further increase the traffic.

Benjamin Abler has concerns about the new subdivision. He plans to live here for many years and it's a wonderful community but 10 Mile Road at its current width cannot accommodate additional traffic of 75 new families. The Island Lake of Novi Subdivision association has existing community shared resources that are already reaching capacity and cannot accommodate the additional 75 families. This expansion was not in the master plan of the City of Novi nor was it in the master plan of Island Lake of Novi. Both plans need to be re-evaluated to determine if this is appropriate. He's in favor of growth and expansion but not at the detriment of community traffic in the immediate area and to the existing residents of the subdivision.

George Vitta objects also. He says the existing traffic volume on Wixom Road, north of 10 Mile is too great. The access to Wixom Road during morning and evening rush hours is already greatly limited. I-96 access at Wixom and Grand River takes too long.

Scott Daly also objects because the area is getting too crowded. The traffic causes too much noise for the homes on Reeds Point. Traffic is becoming a safety hazard.

Lolita Brocks also objects because she enjoys the beauty of the woodland and peaceful surroundings of nature.

Angela Shires supports Toll building more beautiful homes but does not support them building in Island Lake without additional amenities being added. If more homes are to be added then Toll must agree to more parks, pools and basketball courts.

Christopher Trainer also objects because the current footprint of Island Lake is not yet completed and the boathouse pool and other amenities are already crowded and over capacity.

Vineeth Kallur objects to the proposal because it would increase the number of people using the pool and cause overcrowding.

Steve Valentines also objects because of the reason of overuse of existing amenities, safety of those crossing Wixom and the subsequent traffic hindrance.

Lori Mayer objects also because overcrowding of the amenities including the pool, tennis court and boathouse.

Daniel Gelovich approves only on the condition that the pool is expanded and/or association dues are reduced.

There was no additional correspondence and no one else in the audience wished to speak.

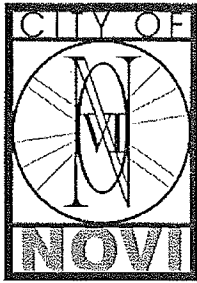
Moved by Member Lynch and seconded by Member Prince:

**ROLL CALL VOTE ON PRELIMINARY SITE PLAN APPROVAL MOTION MADE BY MEMBER LYNCH AND SECONDED BY MEMBER PRINCE:**

**Motion to adjourn the public hearing to a future date to be determined and re-noticed by staff to allow staff adequate time to review the information submitted by the applicant on December 7<sup>th</sup>, and to allow the applicant the opportunity to submit any additional materials. *Motion carried 5-0.***

**PLANNING REVIEW**





## PLAN REVIEW CENTER REPORT

January 31, 2013

### Planning Review

The Meadows of Island Lake Of Novi

**JSP12-65**

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#### Petitioner

Toll Brothers, Inc.

#### Review Type

Revised RUD Amendment, Revised RUD Plan, Revised Preliminary Site Plan and Phasing Plan

#### Property Characteristics

- Site Location: North of Ten Mile Road and east of Wixom Road (Section 20)
- Site Zoning: RA, Residential Acreage
- Adjoining Zoning: North: RA and RA with RUD; South and East: RA; West: RA with RUD
- Current Site Use: Vacant
- Adjoining Uses: North: Single-family residential/Existing RUD; South: Vacant, Daycare Center, Single-family residential, Fire Station; West: Single-family residential/Existing RUD; East: Single-Family Residential, Vacant
- School District: Novi Community School District
- Site Size: 40.68 acres
- Plan Date: 12-21-12

#### Project Summary

The applicant is proposing to add a 40.68 acre parcel near the northeast corner of Ten Mile Road and Wixom Road to the existing Island Lake of Novi Residential Unit Development (RUD) Agreement in order to construct 74 single-family residential units. The existing agreement provides review standards for the development of the property where the terms of the development differ from the underlying ordinance standards.

There are currently 773 units constructed or approved in the existing Island Lake development. The addition of 74 units would bring the total number of units to 847 units, less than the amount permitted in the existing RUD Agreement (884 units). The applicant has also proposed increasing the number of units permitted in the agreement from 884 to 916 in order to allow for future expansion of the development. The additional future expansion area has not been identified.

The ordinance states that an RUD shall include detached one-family dwelling units, as is proposed in this phase. The applicant has not proposed any attached units, clubhouses, churches, schools or other uses that may be permitted as a part of the proposed development phase. While a variety of housing types is expected in an RUD, the overall density generally shall not exceed the density permitted in the underlying zoning district. The applicant has provided a statement that the proposed density will increase from 0.89 units/acre to 0.96 units/acre if the RUD Amendment is approved. The Island Lake Development is a combination of R-1, One Family Residential, and RA, Residential Acreage zoning.

The previously submitted RUD Plan, RUD Amendment and Preliminary Site Plan and proposed 75 single-family residential units. The Planning Commission held a public hearing on December 12, 2012 for the submitted RUD Plan. At that public hearing several members of the public expressed concerns. The Planning Commission postponed consideration of the item and adjourned the public hearing to a date to be determined to allow the applicant additional time to address the concerns of detailed in the staff and consultant review letters, and the concerns of the public.

## Planning Review

The Meadows of Island Lake of Novi  
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The revised RUD Plan, RUD Amendment and Preliminary Site Plan propose 74 single-family units (1 less than previously proposed). The eliminated unit has been converted to open space and parkland and the applicant has offered to contribute \$25,000 to the Island Lake Homeowner's Association to be used for the expansion of the existing swimming pool deck. The applicant has also included several features to aid pedestrians, including a sidewalk connection to the proposed Dinser Drive sidewalk, a crosswalk on Wixom Road and the construction of approximately 928 feet of missing sidewalk within the Wixom Road right-of-way on the property south of the proposed development.

## Recommendation

Staff **recommends approval of the revised RUD Plan and RUD Amendment** to allow for the development of the subject property without an increase in the overall allowable units for the entire Island Lake of Novi development provided that the Planning Commission recommends and the City Council finds that the proposed plan meets the Zoning Ordinance standards for a major change to an approved RUD, as outlined in this letter. If the RUD Plan and RUD Amendment are approved by the City Council, the revised Preliminary Site Plan, Woodland Permit and Storm Water Management Plan will be considered by the Planning Commission.

While staff supports the increase in the number of units needed for this phase (an additional 74 units to the existing 773 units, and allowed within the previously approved maximum of 884 units) as identified on the submitted plans, **staff does not support the increase in the allowable number of units above what is shown (an additional 32 units to the overall development to allow up to 916 units) on the submitted RUD plan at this time.** If at some point in the future, additional land is identified for expansion of the RUD development, the applicant may return for revised RUD plan consideration at that time.

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## RUD Standards

Any amendment or revision constituting a major change in the approved RUD plan shall be reviewed as if it were a new RUD plan. An increase in the number of dwelling units is considered a major change. The Planning Commission and City Council are asked to consider the following when evaluating the proposed RUD amendment. Staff comments are underlined and bracketed.

- a) The appropriateness of the site for the proposed use;
- b) The effects of the proposed use upon adjacent properties and the community;
- c) The demonstrable need for the proposed use;
- d) The care taken to maintain the naturalness of the site and to blend the use within the site and its surroundings;  
[While larger, valuable Walnut trees have been preserved along Dinser Drive, a significant amount of regulated woodland would be removed as part of the proposed development.]
- e) The existence of clear, explicit, substantial and ascertainable benefits to the City from the RUD.  
[The applicant has provided a narrative describing the benefits of the RUD.]

The Planning Commission and City Council shall consider the following factors noted in Section 2402.8 as part of their evaluation of the RUD Amendment. Staff comments are italicized and bracketed.

- a) Whether all applicable provisions of this Section [2402 of the Zoning Ordinance], other applicable requirements of this Ordinance, including those applicable to special land uses, and all applicable ordinances, codes, regulations and laws have been met.  
[The applicant has submitted the required application information.]
- b) Whether adequate areas have been set aside for all schools, walkways, playgrounds, parks, recreation areas, parking areas and other open spaces and areas to be used by residents of the development. The applicant shall make provisions to assure that such areas have been or will be committed for those purposes.

**Planning Review**

The Meadows of Island Lake of Novi  
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[Walkways have generally been provided as part of the proposed addition. The applicant has set aside 13.7% of the proposed development area as open space, some of which will be comprised of a recreation area. The applicant has offered to donate \$25,000 to the Island Lake Homeowner's Association to be used for expansion of the pool deck, an existing amenity.]

- c) Whether traffic circulation features within the site and the location of parking areas are designed to assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets.  
[The applicant has provided for safe traffic flow as indicated in the traffic review letter.]
- d) Whether, relative to conventional one-family development of the site, the proposed use will not cause any detrimental impact in existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfare level of service, or, in the alternative, the development will provide onsite and offsite improvements to alleviate such impacts.  
[The development will not have a detrimental impact on existing thoroughfares over and above development under the existing zoning as indicated in the traffic review letter.]
- e) Whether there are or will be, at the time of development, adequate means of disposing of sanitary sewage, disposing of stormwater drainage, and supplying the development with water.  
[The applicant has provided for adequate stormwater management and utilities.]
- f) Whether, and the extent to which, the RUD will provide for the preservation and creation of open space. Open space includes the preservation of significant natural assets, including, but not limited to, woodlands, topographic features, significant views, natural drainage ways, water bodies, floodplains, wetlands, significant plant and animal habitats and other natural features. Specific consideration shall be given to whether the proposed development will minimize disruption to such resources. Open space also includes the creation of active and passive recreational areas, such as parks, golf courses, soccer fields, ball fields, bike paths, walkways and nature trails.  
[The applicant has set aside 13.7% of the proposed development area as open space, some of which will be comprised of a recreation area.]
- g) Whether the RUD will be compatible with adjacent and neighboring land uses, existing and master planned.  
[Uses permitted in the single-family zoning districts are proposed or existing on the surrounding parcels to the north and east. The adjacent property at the northeast corner of Ten Mile and Wixom Roads is developed as a daycare facility and an undeveloped, wooded lot. The Planning Commission and the City Council may wish to consider the future uses of this remainder property, currently zoned and master planned for residential uses.]
- h) Whether the desirability of conventional residential development within the City is outweighed by benefits occurring from the preservation and creation of open space and the establishment of school and park facilities that will result from the RUD. [One additional pocket park is proposed with this phase. Residents of this phase would have access to the parks and open space created in earlier phases of the Island Lake Development, with proposed pedestrian access provided for the phases located on the east side of Wixom Road.]
- i) Whether any detrimental impact from the RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of school and park facilities that will result from the RUD.

- j) Whether the proposed reductions in lot sizes and setback areas are the minimum necessary to preserve and create open space, to provide for school and park sites, and to ensure compatibility with adjacent and neighboring land uses.  
[A reduction in lot sizes below the Zoning Ordinance standards is proposed. Several lots would be deficient in terms of the required side yard setback even under the reduced standard.]
- k) Evaluation of the impact of RUD development on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost and with regard to the planned and expected contribution of the property to tax base and other fiscal considerations.
- l) Whether the applicant has made satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements.
- m) Whether the applicant has made satisfactory provisions for future ownership and maintenance of all common areas within the proposed development.  
[The new development area would be included in the amended Master Deed and By-laws for the Island Lake of Novi development.]
- n) Whether any proposed deviations from the area, bulk, yard, and other dimensional requirements of the zoning ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area.

#### Ordinance Requirements

This project was reviewed for conformance with the standards of the RUD Agreement. Where the agreement fails to address an item of review, the underlying ordinance standards govern the review of the site including standards in Article 3 (RA Residential Acreage District), Article 24 (Schedule of Regulations), Article 25 (General Provisions) and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed by the applicant and or Planning Commission/City Council.

1. **RUD Intent:** As an optional form of development, the RUD allows development flexibility of various types of residential dwelling units (one-family, attached one-family cluster). It is also the intent of the RUD option to permit permanent preservation of valuable open land, fragile natural resources and rural community character that would be lost under conventional development. This is accomplished by permitting flexible lot sizes in accordance with open land preservation credits when the residential developments are located in a substantial open land setting, and through the consideration of relaxation of area, bulk, yard, dimensional and other zoning ordinance standards in order to accomplish specific planning objectives.

This flexibility is intended to reduce the visual intensity of development; provide privacy; protect natural resources from intrusion, pollution, or impairment; protect locally important animal and plant habitats; preserve lands of unique scenic, historic, or geologic value; provide private neighborhood recreation; and protect the public health, safety and welfare.

Such flexibility will also provide for:

- The use of land in accordance with its character and adaptability;
- The construction and maintenance of streets, utilities and public services in a more economical and efficient manner;
- The compatible design and use of neighboring properties; and
- The reduction of development sprawl, so as to preserve open space as undeveloped land.

Amendments and Revisions to an approved RUD plan shall require all procedures and conditions that are required for original submittal and review for amendments that are considered "major changes". The addition of land area and increase in the number of dwelling units are both considered "major changes", so full review of the ordinance standards is necessary at this time.

2. Density: The currently approved RUD Agreement allows up to 884 dwelling units. A total of 773 dwelling units have been approved for the development through site plan approvals. The applicant is seeking to add 74 units in this phase, and increase the permitted density an additional 32 units for a phase yet to be determined. The applicant has indicated that the density approved in the RUD is 0.97 units/acre. With the proposed addition of 32 units, and if the total number of units permitted is constructed, the actual density will be 0.96 units/acre. The applicant has provided the updated density calculations for the entire development and Island Lake of Novi will be within the permitted density with the new proposed development area.
3. Lot Size and Area: One-family detached dwellings are subject to the minimum lot area and size requirements of the underlying district. RA zoning requires 43,560 sq. ft. lots that are a minimum of 150 ft. wide. The applicant has proposed a minimum size of 12,000 sq. ft. and a minimum width of 90 ft., consistent with the currently approved RUD Agreement standards. **The City Council may modify lot size and width requirements where such modification will result in the preservation of open space for those purposes set forth in Section 2402.3B of the Zoning Ordinance and where the RUD will provide a genuine variety of lot sizes. The plans indicate that a total of 5 acres of open space will be maintained in this phase of development (mostly in the perimeter buffering, the detention basin area and the proposed pocket park), which is about 13.7 percent of the area in this phase. The applicant has provided a summary of lot sizes throughout the entire development. Taken as a whole, there are a variety of lot sizes throughout Island Lake of Novi. In the proposed phase, lots range from approximately 12,000 sq. ft. to 28,719 sq. ft., allowing for some variation in lot size. This is consistent with other phases of Island Lake of Novi.**
4. Building Setback: One-family detached dwellings in an RUD are subject to the building setback regulations of the underlying zoning district, in this case the RA District. The RA District setbacks are listed in the attached planning review chart. The applicant has proposed building setbacks generally consistent with the currently approved RUD Agreement standards. **This setback reduction would be permitted provided the City Council agrees to the reduction in lot size and area noted above.** Additionally, the applicant has proposed a 7 ft. side yard setback in several instances, which would be deficient even if the current RUD Agreement standards are used. **Provided lot sizes and widths are reduced as part of the RUD plan approval, the City Council is authorized to grant deviations from the strict terms of the Zoning Ordinance with a Council finding of the following factors listed in Sec. 2402.6:**
  - a. That each zoning ordinance provision from which a deviation is sought would, if the deviation were not granted, prohibit an enhancement of the development that would be in the greater public interest;
  - b. That approving the proposed deviation would be compatible with the existing and planned uses in the surrounding area;
  - c. That the proposed deviation would not be detrimental to the natural features and resources of the affected property and surrounding area, or would enhance or preserve such natural features and resources;
  - d. That the proposed deviation would not be injurious to the safety or convenience of vehicular or pedestrian traffic. In determining whether to grant any such deviation, the Council shall be authorized to attach reasonable conditions to the RUD plan, in accordance with Section 2402.10; and
  - e. That the proposed deviation would not cause an adverse fiscal or financial impact on the City's ability to provide services and facilities to the property or to the public as a whole.

**The applicant has provided justification related to the requested deviation indicating there is a conflict between the originally approved RUD and current City ordinances regulating driveways necessitating a three foot deviation for side-entry garages.**

## Planning Review

The Meadows of Island Lake of Novi  
JSP12-65

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5. Submittal Requirements: The applicant has submitted the items noted in Section 2402.7 of the ordinance including a recent aerial photo with a scale not smaller than 1"=200"; a written statement regarding the expected population for the RUD Plan; and a statement regarding the proposed mechanism to assure the permanent preservation and maintenance of open space areas, RUD amenities, and common areas.
6. Private Parks and Recreation Areas: At the Pre-Application meeting, the applicant indicated that residents of "The Meadows" phase would be permitted to use the private parks, recreation areas and clubhouse that have been established for the Island Lake community. Staff inquired about whether non-motorized improvements would be proposed to assist in allowing for non-motorized traffic to cross Wixom Road. The approved Non-Motorized Master Plan shows an existing signalized pedestrian crosswalk at Ten Mile Road and Wixom Road, and another crossing location planned for Wixom Road, north of Ten Mile Road. The applicant has proposed a sidewalk connection to the proposed Dinser Drive sidewalk, a crosswalk on Wixom Road and the construction of approximately 928 feet of missing sidewalk within the Wixom Road right-of-way on the property south of the proposed development.
7. Special Land Use: The Planning Commission shall also consider the standards for Special Land Use approval as a part of its review of the proposed RUD modification, per Section 2402.8.B.
8. Master Deed and By-laws: The amended Master Deed and By-laws must be submitted for review with the Final Site Plan submittal.
9. Parcel Combination/Split: It appears a parcel combination and/or parcel split is proposed. All combinations and splits must be completed prior to Stamping Set approval.
10. Signage: Exterior Signage is not regulated by the Planning Division or Planning Commission. Please contact Jeannie Niland (248.347.0438) for information regarding sign permits.

### Site Addressing

The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. The address application can be found on the Internet at [www.cityofnovi.org](http://www.cityofnovi.org) under the forms page of the Community Development Department.

Please contact Jeannie Niland [248.347.0438] in the Community Development Department with any specific questions regarding addressing of sites.

### Street and Project Name

This proposed streets will need approval from the Street and Project Naming Committee. Please contact Richelle Leskun (248-347-0579) in the Community Development Department for additional information.

### Pre-Construction Meeting

Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or [smarchioni@cityofnovi.org](mailto:smarchioni@cityofnovi.org)] in the Community Development Department.

### Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

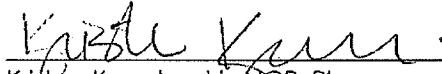
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**Response Letter**

A letter from either the applicant or the applicant's representative addressing comments in this and other review letters is required prior to consideration by the Planning Commission and with the next plan submittal.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.347.0586 or [kkapelanski@cityofnovi.org](mailto:kkapelanski@cityofnovi.org).

  
\_\_\_\_\_  
Kristen Kapelanski, AICP, Planner  
Attachments: planning review chart

**Planning Review Summary Chart**

JSP12-65 The Meadows of Island Lake of Novi  
 Revised Preliminary Site Plan and RUD Amendment  
 Plan Date: 12-21-12

Item	Proposed	Meet Requirements?	Comments
Property is master planned for single family residential use	No change	Yes	
Zoning is currently RA, Residential Acreage	Inclusion in the Island Lake of Novi RUD		Applicant has submitted an amendment to the Island Lake RUD Agreement.
<b>Use (Sec. 2402)</b> single family detached homes, etc.	Single-family, detached homes proposed	Yes	
<b>Density (RUD term)</b>  884 dwelling units permitted under current RUD agreement	<p>Island Lake has 773 dwelling units under currently approved site plans.</p> <p>Up to 884 dwelling units are permitted.</p> <p>The applicant has indicated up to 74 units could be constructed on the subject property bring the total number of units to 847 units.</p> <p>The applicant has proposed to add 32 units to the RUD meaning up to 916 units could be developed in order to allow for potential expansion of the RUD in the future.</p>		<p>See the planning review letter for additional information.</p> <p>The applicant has indicated the total density of the Island Lake of Novi development will be 0.96 units per acre, consistent with the originally approved density of 0.97 units per acre.</p> <p>The applicant has indicated the additional 32 units are proposed to be included in the RUD to allow for additional expansion of the development in the future.</p>
<b>RUD Ordinance Standards (Sec. 2402)</b>			
Required property size – 20 acres	40.68 acres	Yes	
Detached one-family dwellings permitted	Detached one-family dwellings	Yes	



Item	Proposed	Meet Requirements?	Comments
<p><b>Minimum Lot Size</b> (Sec. 2402.4 and RUD term) One-family detached dwellings are subject to the minimum lot area requirements of the underlying district. RA zoning requires 43,560 sq. ft. lots.</p> <p>Non waterfront lots in the RUD are required to be a minimum of 12,000 square feet</p>	<p>Minimum lot size 12,000 sq. ft.</p>	<p>No</p>	<p>The City Council may modify such lot area requirements where such modification will result in the preservation of open space for those purposes set forth in subpart 2402.3B and where the RUD will provide a genuine variety of lot sizes.</p> <p>See the planning review letter for additional information.</p>
<p><b>Minimum Lot Width</b> (Sec. 2402.4 and RUD term) One-family detached dwellings are subject to the minimum lot width requirements of the underlying district. RA zoning requires 150 ft. lot widths.</p> <p>Non waterfront lots in the RUD are required to be a minimum of 90 feet wide</p>	<p>Minimum 90 ft. lot width</p>	<p>No</p>	<p>The City Council may modify such lot width requirements where such modification will result in the preservation of open space for those purposes set forth in subpart 2402.3B and where the RUD will provide a genuine variety of lot sizes.</p> <p>Lot sizes in this proposed Phase 7 are similar to lot sizes in the recently added Phase 5C, which is currently under construction west of Oak Pointe Church.</p>
<p><b>Building Setbacks</b> (Sec. 2402.5 and RUD term) One-family detached dwellings shall be subject to the minimum requirements of the zoning district. RA zoning Front: 45 ft. Rear: 50 ft. Side: 20 ft. Side Yard Aggregate: 50 ft.</p> <p>If lot sizes are reduced in accordance with Sec. 2402.4 yard requirements shall be governed by that zoning district which has minimum lot area and width standards that correspond to the dimensions of the particular lot.</p> <p>For 90 foot wide lots: Front: 30 feet Rear: 35 feet Side Minimum: 10 feet</p>	<p>Front: Min. 30 ft. Rear: 35 ft. Side: 7 ft. Aggregate Side: 30 ft.</p> <p>Entire building envelope shown on plans</p>	<p>No</p>	<p>7' side yard setback shown in several instances.</p> <p>Provided lot sizes and widths are reduced as part of final approval of an RUD plan, the City Council shall be authorized to grant deviations from the strict terms of the zoning ordinance with a Council finding of the factors listed in Sec. 2402.6.</p>

Item	Proposed	Meet Requirements?	Comments
Side Combined: 30 feet			
<b>Minimum Floor Area (Sec. 2400)</b> Units must be greater than 1,000 square feet	No minimum unit size shown or required at this point	N/A	Building size reviewed at plot plan phase
<b>Building Height (Sec. 2400)</b> Buildings shall not exceed 2 ½ stories or 35 feet	No elevations provided at this time	N/A	Building height reviewed at plot plan phase
<b>Sidewalks (RUD term)</b> A pedestrian network plan was approved as part of the RUD. This plan requires sidewalks along all internal roads.	Sidewalks shown	Yes	
<b>Open Space (RUD term)</b> The RUD includes an open space plan, indicating certain areas to be set aside as community open space	The current plan does not encroach into those areas designated for open space. The proposed development area includes 13.7% open space.	Yes	See the planning review letter for additional information.

Review Prepared by Kristen Kapelanski, AICP

**ENGINEERING REVIEW**



## PLAN REVIEW CENTER REPORT

January 31, 2013

### Engineering Review

The Meadows of Island Lake of Novi  
JSP12-0065

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#### Petitioner

Toll Bros. Inc., applicant

#### Review Type

Revised Preliminary Site Plan

#### Property Characteristics

- Site Location: E. of Wixom Rd and N. of Ten Mile Rd
- Site Size: 40.68 acres
- Plan Date: December 21, 2012

#### Project Summary

- Construction of a 75 lot two-phase single family subdivision on approximately 40.68 acres. Site access would be provided by Wixom Road and Acorn Trail.
- Water service would be provided by the existing 12-inch water mains on Wixom Rd that would be extended through the proposed development as an 8-inch public water main. Extension of the water main across the Ten Mile Road and Dinser Road frontages as a 12-inch water main.
- Sanitary sewer service would be provided by a 10-inch extension from the existing 10-inch sanitary sewer along the west side of Wixom Road with a stub to Dinser Drive.
- Storm water would be collected by two storm sewer collection systems, one directing flow into an expansion of the existing detention basin (Basin 1) in Island Lake 3C and the other directing flow into a proposed detention basin (Basin 2) south of Basin 1. Basin 1 and Basin 2 are proposed to discharge into a storm sewer network that ultimately outlets into Island Lake.

#### Recommendation

Approval of the Revised Preliminary Site Plan and Preliminary Storm Water Management Plan is recommended.

**Comments:**

The Revised Preliminary Site Plan meets the general requirements of Chapter 11, the Storm Water Management Ordinance and the Engineering Design Manual with the following items to be addressed at the time of Final Site Plan submittal (further engineering detail will be required at the time of the final site plan submittal):

**Additional Comments (to be addressed prior to the Final Site Plan submittal):**

**General**

1. The City standard detail sheets are not required for the Final Site Plan submittal. They will be required with the Stamping Set submittal.

**Water Main**

2. Provide a profile for all proposed water main with a note stating that a minimum cover of five and one-half (5½) feet shall be maintained at all times.
3. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (1/07 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets.

**Sanitary Sewer**

4. Provide a profile for all proposed sanitary sewer with a note stating that a minimum cover of four (4) feet shall be maintained at all times.
5. Revise the sanitary sewer service area to show how the area south of Delmont Drive and west of the ITC property will be served, either by the sanitary stub provided in Island Lake 3C or the proposed sanitary stub on Dinsler Drive. The sanitary service area for the proposed stub should be maximized to eliminate any breaks in service area. This may require an increase in invert depth for the proposed stub on Dinsler Drive.
6. Five (5) sealed sets of revised utility plans along with the MDEQ permit application (11/07 rev.) for sanitary sewer construction and the Streamlined Sanitary Sewer Permit Certification Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets. Also, the MDEQ can be contacted for an expedited review by their office.

**Storm Sewer**

7. Provide a profile of the proposed storm sewer showing a minimum cover of 3 feet and all catch basin sumps.
8. Provide the location for all residential sump leads. All leads must discharge into the subdivision's storm sewer network.

Storm Water Management Plan

9. The Storm Water Management Plan for this development shall be designed in accordance with the Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual.
10. A revised Storm Drain Maintenance agreement for Island Lake 3C may be required for the changes to Basin 1.

Paving & Grading

11. Provide spot elevations to demonstrate a level landing adjacent to each side of the pathway crossing and general ADA compliance.
12. No more than ¼" vertical obstacle shall be allowed at each transition between the pathway and the drive approach.

Off-Site Easements

13. Provide a temporary construction easement for the detention basin expansion in Island Lake 3C.
14. Provide a revised Storm Drainage Maintenance Agreement for Island Lake 3C

The following must be submitted at the time of Final Site Plan submittal:

15. A letter from either the applicant or the applicant's engineer must be submitted with the Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.
16. An itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. **The cost estimate must be itemized** for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).

The following must be submitted at the time of Stamping Set submittal:

17. A draft copy of the maintenance agreement for the storm water facilities, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department with the Final Site Plan. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds.
18. A draft copy of the 20-foot wide easement for the water main to be constructed on the site must be submitted to the Community Development Department.

19. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed on the site must be submitted to the Community Development Department.
20. A 20-foot wide easement where storm sewer or surface drainage crosses lot boundaries must be shown on the Exhibit B drawings of the Master Deed.
21. Executed copies of any required off-site utility/construction easements must be submitted to the Community Development Department.

**The following must be addressed prior to construction:**

22. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).
23. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. Once determined, a grading permit fee must be paid to the City Treasurer's Office.
24. An NPDES permit must be obtained from the MDEQ because the site is over 5 acres in size. The MDEQ requires an approved plan to be submitted with the Notice of Coverage.

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25. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.
26. A permit for work within the right-of-way of Wixom Rd and Dinser Dr must be obtained from the City of Novi. The application is available from the City Engineering Department and should be filed at the time of Final Site Plan submittal. Please contact the Engineering Department at 248-347-0454 for further information.
27. A permit for work within the right-of-way of Ten Mile Rd must be obtained from the Road Commission for Oakland County. Please contact the RCOC (248-858-4835) directly with any questions. The applicant must forward a copy of this permit to the City. Provide a note on the plans indicating all work within the right-of-way will be constructed in accordance with the Road Commission for Oakland County standards.
28. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the water main plans have been approved.
29. A permit for sanitary sewer construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the sanitary sewer plans have been approved.
30. Construction Inspection Fees to be determined once the construction cost estimate is submitted must be paid prior to the pre-construction meeting.

31. A storm water performance guarantee, equal to 1.5 times the amount required to complete storm water management and facilities as specified in the Storm Water Management Ordinance, must be posted at the Treasurer's Office.
32. An incomplete site work performance guarantee, equal to 1.5 times the amount required to complete the site improvements (excluding the storm water detention facilities) as specified in the Performance Guarantee Ordinance, must be posted at the Treasurer's Office.
33. A street sign financial guarantee in an amount to be determined (\$400 per traffic control sign proposed) must be posted at the Treasurer's Office.
34. Permits for the construction of each retaining wall (if applicable) must be obtained from the Community Development Department (248-347-0415).

Please contact Adam Wayne at (248) 735-5648 with any questions.



A handwritten signature in black ink, appearing to read "Adam Wayne", is written over a horizontal line.

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cc: Ben Croy, Engineering  
Brian Coburn, Engineering  
Kristen Kapelanski, Community Development Department  
Tina Glenn, Water & Sewer Dept.



**TRAFFIC REVIEW**

January 28, 2013

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

**SUBJECT: The Meadows (of Island Lake of Novi), JSP12-0065,  
Traffic Review of Revised Island Lake RUD Amendment (PRUD13-0003)  
& Revised Preliminary Site Plan (PSP13-0039)**

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 above two items, subject to the items shown below in **bold** being satisfactorily addressed on the final site plan.

#### **Site Description**

What is the applicant proposing, and what are the surrounding land uses and road network?

1. The applicant is proposing 74 single-family home sites on a 40.68-acre site on the northeast corner of Wixom and 10 Mile Roads (surrounding two outlots at the immediate corner). Primary vehicular access would occur via an easterly extension of Drakes Bay from its current east terminus at Wixom Road, and secondary vehicular access would occur via a southerly extension of Acorn Trail (from an earlier phase of Island Lake).
2. Most surrounding land is in residential use or undeveloped. Earlier phases of Island Lake lie to the north and west, scattered homes in residential-acreage districts are south and east, and a City fire station is located on the south side of 10 Mile opposite Wixom Road.
3. Wixom Road is a 35-mph minor arterial under City of Novi jurisdiction. This two-lane road widens to include a center left-turn lane at selected locations, such as Drakes Bay. A speed study done for the City showed that the average daily traffic (ADT) volume at a point about midway between 10 and 11 Mile Roads was approximately 7,500 vehicles in November 2010; however, a just-completed study at Wixom and Glenwood (north of 11 Mile) shows that Wixom's daily volume has increased about 20% over the past two years.

#### **Trip Generation & Traffic Study**

Was a traffic study submitted and was it acceptable? How much new traffic would be generated?

4. Seventy-four single-family detached homes can be expected to generate about 796 one-way vehicle trips per day, 61 in the AM peak hour (15 entering and 46 exiting) and 80 in the PM peak hour (50 entering and 30 exiting). Since peak-hour, peak-direction trips would be less than 75, the applicant does not need to prepare and submit a formal traffic study.

#### **Vehicular Access Locations**

Do the proposed "driveway" locations meet City spacing standards?

5. As indicated above, both points of vehicular access would be extensions of existing streets. Relative to the primary access on Wixom Road, the nearest existing intersections are 10 Mile Road to the south and Braeburn Lane to the north, both about 900 ft from Drakes Bay.

#### **Vehicular Access Improvements**

Will there be any improvements to the abutting road(s) at the proposed access point(s)?

6. None have been proposed, other than a note (on plan sheet 15) indicating that the southbound center-lane approach to Drakes Bay will be re-striped for a left-turn lane. **This re-striping will have to be detailed on the final site plan. Based on the plan's rendition of existing conditions, it appears that it would be feasible to provide an adequate, 75-ft-long southbound left-turn lane at least 10-12-ft wide, extending north from an imaginary east-west extension of the north curb of Drakes Bay; over this distance, all crosshatching will have to be ground off, a 4-inch-wide solid white line placed along the west side of the turn lane, and a left-only arrow and the word ONLY painted on the pavement. A 50-ft-long entry gap should then be provided north of the full-width left-turn lane, by grinding off the double-yellow striping west of the centerline as well as all crosshatching.**
7. To afford northbound left-turn drivers a sense of equal turning priority, **the lane markings on the northbound approach should be extended north to a point opposite an imaginary east-west extension of the south curb of Drakes Bay.**
8. The approved 2002 plan for Island Lake called for a **RIGHT LANE MUST TURN RIGHT (R3-7R)** sign on southbound Wixom Road approaching Drakes Bay, at the north end of a 60-ft-long solid white stripe separating the right-turn lane from the through lane (and about 80 ft in advance of the north curb of Drakes Bay). However, as can be seen in the attached photo, no such sign existed as of May 2009. **Given the proposed addition of a southbound left-turn lane at this location, we recommend that a left-only + through-only + right-only Lane Control (R3-8b) sign be installed in place of the missing R3-7R.**
9. The 2010 speed sample on Wixom Road near Delmont Drive showed that 38% of the traffic in the 5:00-6:00 p.m. peak hour was northbound. Making the worst-case assumption that this percentage of all traffic entering The Meadows would turn right from Wixom Road that hour, the entering right-turn volume would be 19 vehicles. It may be reasonable to also assume that the ADT volume on Wixom at this location is now 20% higher than it was at Delmont in 2010 (per comment 3 above), or 9,000 vehicles. Coincidentally, the above

combination of peak-hour right-turn volume and roadway ADT volume appears to exactly equal the City's warrant for a right-turn taper (per DCS Figure IX.10). However, assuming that at least some traffic would enter via Acorn Trail/Braeburn Lane or existing Drakes Bay, the warrant would not quite be met, even under the assumed new level of through traffic. Given this conclusion, the moderate (35-mph) speed limit, and the entry design of other side streets to the north, we are not recommending (and the applicant is not proposing) deceleration and/or acceleration tapers on Wixom at Drakes Bay East.

#### **Access Drive Design & Control**

Are the proposed design, pavement markings, and signage satisfactory?

10. The first boulevard island upon entering from Wixom Road would be about 58 ft long, slightly longer than the Novi standard but shorter than the maximum permitted (per DCS Figure IX.3). The nose offset, individual entering and exiting road widths, and curb return radii all meet City standards.
11. Consistent with our pre-application comments, the only pavement markings on the new westbound approach to Wixom Road would be those for a north-south crosswalk. Currently, the plan simply notes "Pro. 8' wide crosswalk striping." **The final site plan should show two MMUTCD-standard 6-inch-wide white longitudinal stripes spaced 8 ft apart (the width of the paved safety path north and south of this intersection).**
12. Since the preliminary site plan was first submitted, an east-west crosswalk has been added on the north side of the Wixom/Drakes Bay intersection, with an attached note reading in part "(Design to match two (2) existing painted crosswalks further north on Wixom Road)." **The pattern and color of this crosswalk must be consistent with MMUTCD standards and detailed on the final site plan.**
13. **The two Keep Right signs now proposed at the 28-ft-wide opening between the two boulevard islands are unnecessary and should be deleted.**
14. To afford drivers turning right onto Drakes Bay East from Lake View Drive a better opportunity to notice and benefit from **the proposed westbound Lane Control (R3-8 modified) sign, that sign should be relocated 55 ft to the west, where it would still be 80 ft in advance of the STOP sign.**
15. **Clear-vision triangles consistent with DCS Figure VIII-E and 11 Mile Road's 35-mph speed limit should be shown on the plan at Wixom and Drakes Bay East.**

#### **Pedestrian Access**

Are pedestrians safely and reasonably accommodated?

16. An 8-ft-wide safety path is proposed along Wixom Road, consistent with what was previously provided for Island Lake along this side of the road to the north. **The plan should note the type of paving proposed for this path (concrete or asphalt).**

17. In response to our pre-application comments, a walk was proposed between the development and the 10 Mile sidewalk, roughly midway along the development's 10 Mile Road frontage. The plan should note that this walk and the 6-ft-wide walk along the north side of 10 Mile will be constructed of Portland cement concrete.
18. Unless otherwise specified by the City's ADA Compliance Officer, ADA-compliant sidewalk ramps – equipped with detectable warning surfaces – should be provided on the:
  - a. Safety path on both sides of Drakes Bay East.
  - b. Ten Mile Road sidewalk on the west side of Dinser Drive.
  - c. All internal sidewalk stubs (which have now been proposed in all requested locations).

#### Circulation & Parking

Can vehicles safely and conveniently maneuver through the site?

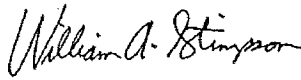
19. All proposed street widths, centerline radii, and curb return radii meet or exceed City standards. The two very short U streets substantially conform to City design standards for a cul-de-sac turnaround.
20. The sign symbols distributed around the plan show only one street-name sign per intersection. Both streets at each intersection (both external and internal) must be equipped with a street-name sign.
21. To help ensure circulation by emergency vehicles, each U-street island should be equipped with two pair of back-to-back, 12-inch No Parking symbol (R8-3) signs. Such sign posts should be located at the  $\frac{1}{4}$  and  $\frac{3}{4}$  points around the periphery of each island. (Since there is no approaching centerline relative to each of these two islands, there is no need for the customary Keep Right sign.)
22. Given proposed phasing, it appears likely that after the construction of Phase 7A but before construction of Phase 7B, there may be two temporary, 108-130-ft-long stubs in Drakes Bay East south of Meadow View Drive. At a minimum, the plan should call for the temporary placement of an End of Road (OM4-3) marker on the centerline at the end of each stub. A plan note should be included calling for the removal of the two markers upon extending the road into Phase 7B.
23. The same sign legend appears on each of several sheets. The plan should clarify that this sign legend / sign quantity table applies to the entire plan, not just the particular sheet on which it appears. Also, reflecting earlier comments, the table should include:

- a. A left-only + through-only + right-only Lane Control (R3-8b) sign (for SB Wixom approach to Drakes Bay.)
- b. One Lane Control (R3-8 modified) sign, specifically a left-only + shared through/right sign, not two as now listed (for WB Drakes Bay).
- c. Two diagrammatic Keep Right (R4-7) signs, not two as now listed (for the west end of the west boulevard island and the east end of the east boulevard island).
- d. A total of 14 street-name signs, not seven. Per City standards (available from the City Engineering Division), the street-name signs at the Wixom/Drakes Bay East intersection will be larger than the internal signs.
- e. A total of eight No Parking Symbol signs (R8-3, 12-inch size), mounted on four posts (two on each U-street island).
- f. Two End of Roadway (OM4-3) object markers (red reflective diamond panels) (for temporary placement in Drakes Bay East prior to construction of Phase 7B).

Sincerely,  
CLEARZONING, INC.



Rodney L. Arroyo, AICP  
President



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

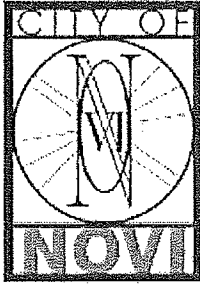
Attachment:  
Google street-level photo of SB Wixom Rd approach to Drakes Bay



**Southbound Wixom Road Approach to Drakes Bay**

LANDSCAPE REVIEW





cityofnovi.org

## PLAN REVIEW CENTER REPORT

December 27, 2012

### Revised Preliminary Landscape Review

Meadows of Island Lake JSP#12-0065

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#### Property Characteristics

##### Recommendation

Approval of the Revised Preliminary Site Plan for Meadows of Island Lake JSP#12-65 is recommended provided the Applicant receives the necessary waivers from the Planning Commission.

##### Ordinance Considerations

###### Adjacent to Residential – Buffer (Sec. 2509.3.a.)

1. The project is completely surrounded by residentially zoned properties. There are no requirements for buffering between residentially zoned properties.

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

1. The project property is adjacent to public right of ways on Dinser, Ten Mile and Wixom roads. A thirty four foot (34') wide landscaped greenbelt and berm is required at the exterior road frontages. The non-access greenbelt has been adjusted so as not to include any portion of proposed lots. The Applicant has met these requirements with the exception of discontinuing the berms in areas where existing mature vegetation and protected trees are to be preserved. **The discontinuation of the berms in the locations of existing vegetation would require a Planning Commission waiver. Staff would support the waiver.**
2. Berms have been discontinued where located adjacent to proposed storm basins along Wixom Road. **A landscape berm is required in this location or a waiver will be necessary from the Planning Commission. Staff would support the waiver as the Wixom Road basin is the continuation of an existing basin with no existing berm.** The Applicant has proposed significant landscape along this buffer zone as a screen for the basin. The Applicant has further provided additional plantings at the main basin in areas off the subject site but on Island Lake property. These will enhance the existing basin.

###### Street Tree Requirements (Sec. 2509.3.b.)

1. Street tree requirement calculations have been provided.
  - a. The Applicant has met the requirement for street trees on proposed internal roadways.
  - b. The Applicant has met the requirement for street trees on proposed external roadways. Sub-canopy trees have been substituted for full size canopy trees where overhead utility lines exist as allowed under the ordinance.
2. The Applicant has met landscape requirements at proposed cul-de-sac islands.

**Parking Landscape (Sec. 2509.3.c.)**

1. No public parking areas have been proposed.

**Building Foundation Landscape (Sec. 2509.3.d.)**

1. No public buildings are proposed.

**Plant List (LDM)**

1. The Plant List meets the requirements of the Ordinance and Landscape Design Manual.

**Planting Details & Notations (LDM)**

1. Planting Details and Notations meet the requirements of the Ordinance and Landscape Design Manual.

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

1. All landscape areas are required to be irrigated. A note has been provided stating that the existing irrigation system will be appropriately modified in the area of the addition.

**General**

1. Woodland and Wetland reviews will be completed by the City Consultant upon submittal of the Preliminary Site Plan.
2. Please specify a native seed mix for the interior of storm basins.

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. Also see the Woodland and Wetland review comments.

  
Reviewed by: David R. Beschke, RLA

**Financial Requirements Review**

To be completed at time of Final Site Plan Review.

Item	Amount	Verified	Adjustment	Comments
Full Landscape Cost Estimate	\$ 151,416			Includes street trees. Does not include irrigation costs.
Final Landscape Review Fee	\$ 2,271.24			1.5% of full cost estimate Any adjustments to the fee must be paid in full prior to stamping set submittal.

**Financial Requirements (Bonds & Inspections)**

Item	Required	Amount	Verified	Comments
Landscape Cost Estimate	YES	\$ 171,416		Does not include street trees. Includes irrigation.
Landscape Financial Guaranty	YES	\$ 257,124		This financial guarantee is based upon 150% of the verified cost estimate. For Commercial, this letter of credit is due prior to the issuance of a Temporary Certificate of Occupancy. For Residential this is letter of credit is due prior to pre-construction meeting.
Landscape Inspection Fee (Development Review Fee Schedule 3/15/99)	YES	\$ 10,284.96		For projects up to \$250,000, this fee is \$500 or 6 % of the amount of the Landscape cost estimate, whichever is greater.  This cash or check is due prior to the Pre-Construction meeting.
Landscape Administration Fee (Development Review Fee Schedule 3/15/99)	YES	\$ 1,542.74		This fee is 15% of the Landscape Inspection Fee. This cash or check is due prior to the Pre-Construction meeting.
Transformer Financial Guarantee	NO	\$ 0		\$500 per transformer if not included above. For Commercial this letter of credit is due prior to the issuance of a Temporary Certificate of Occupancy. For Residential this is letter of credit is due prior to pre-construction meeting.
Street Tree Financial Guaranty	YES	\$ 103,200		\$400 per tree.
Street Tree Inspection Fee	YES	\$ 6,192		6% of the Street Tree Bond as listed above.
Street tree Maintenance Fee	YES	\$ 6,450		\$25 per tree.
Landscape Maintenance Bond	YES	\$ 17,141		10% of verified cost estimate due prior to release of Financial Guaranty.

**WETLAND REVIEW**



Environmental Consulting & Technology, Inc.

January 21, 2013

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

Re: The Meadows of Island Lake of Novi  
Wetland Review of the Revised Preliminary Site Plan  
JSP12-0065

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan (Plan) for the proposed *The Meadows of Island Lake of Novi* project prepared by Alpine Engineering, Inc. dated December 21, 2012. The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance. ECT previously visited the site on October 31, 2012 with the Applicant's wetland consultant (King & MacGregor Environmental) for the purpose of a Wetland Boundary Delineation.

During the Wetland Boundary Delineation, two areas of on-site wetland were delineated and flagged. The northernmost wetland appears to be the result of a man-made depression/excavation and is considered non-essential by ECT. The southernmost wetland appears to be a City of Novi essential wetland but not regulated by the MDEQ. The wetland boundaries appear to be accurately depicted on the Plan.

The proposed development is located north of Ten Mile Road and east of Wixom Road in Section 20. The proposed project involves the construction of a 2-phase site condominium development (totaling 74 units), associated roads and utilities and two stormwater detention basins.

What follows is a summary of our findings regarding on-site wetlands associated with the proposed project.

**Wetland Impact Review**

As previously noted, two (2) relatively small areas of emergent wetland exist on this parcel totaling 0.17 acres of wetland (see Figure 1). The following table summarizes the existing wetlands and the proposed wetland impacts:

**Table 1. Proposed Wetland Impacts**

<i>Wetland Area</i>	<i>Wetland Area (acres)</i>	<i>City Regulated?</i>	<i>MDEQ Regulated?</i>	<i>Impact Area (acre)</i>	<i>Impact Volume (cubic yards)</i>
A	0.03	City Regulated /Non-Essential	No	0.03	Information Not Provided
B	0.14	City Regulated /Essential	No	0.14	Information Not Provided
TOTAL	0.17	--	--	0.17	Information Not Provided

Based on the essentiality criteria outlined in the City of Novi's Wetland and Watercourse Protection Ordinance, ECT believes that Wetland A does not appear to be City-essential wetland. Wetland A appears to be a man-made depression located along an existing property/lot boundary. This wetland area is dominated by Phragmites (common reed), an invasive species. It is ECT's opinion that this wetland area is a non-essential wetland and is not deemed essential to the preservation of the natural resources of the city because it does not appear to meet one or more of the essentiality criteria set forth in the City's Wetland and Watercourse Protection Ordinance (subsections 12-174(b)(1) – (10)).

Wetland B on the south side of the project site, appears to be considered essential by the city as it appears to meet one or more of the essentiality criteria set forth in the City's Wetland and Watercourse Protection Ordinance (i.e., storm water storage/flood control, wildlife habitat, etc.).

This information has been noted in the *Proposed Wetland Impacts* table, above. Because neither wetland is contiguous to or within 500 feet of any inland lakes, streams or ponds and is less than five acres in size, they do not appear to be regulated by the Michigan Department of Environmental Quality.

The filling of Wetland A is proposed for the purpose of constructing Lots 16 and 17. The filling of Wetland B is proposed for the purpose of constructing Lots 48, 49 and 50.

In addition to wetland impacts, the Plan also specifies impacts to the 25-foot natural features setbacks. As with the Preliminary Site Plan submittal, the current Plan does not indicate the impact areas (i.e., calculated area in square feet) associated with the proposed disturbance to the 25-foot wetland setbacks. This information is necessary in order to complete an Authorization to Encroach the Regulated 25-Foot Wetland Setback at the time of project permitting. This information should be provided on the Final Site Plan.

Comments

The following are repeat comments from ECT's Wetland Review of the Preliminary Site Plan Letter dated December 3, 2012. The current status of each comment follows in ***bold italics***. It should be noted that the Applicant's Engineer stated in their preliminary site plan review response letter dated December 21, 2012 that the wetland items noted in our previous review letter would be addressed at the time of Final Site Plan.

1. Neither Wetlands A nor Wetland B appear to be MDEQ-regulated. Both Wetland A and Wetland B appear to be regulated by the City of Novi, however only Wetland B appears to be considered essential (i.e., exhibit storm water storage function as well as provide wildlife habitat). Wetlands deemed essential by the City of Novi require the approval of a use permit for any proposed impacts to the wetland.

***This item still applies. The proposed wetland impacts will require a City of Novi Wetland and Watercourse Permit as well as an Authorization to Encroach the 25-Foot Wetland Setback letter.***

2. The Plan does not appear to currently indicate the impact areas associated with the proposed disturbance to the 25-foot wetland setbacks. The impact areas should be noted on the Plan.

***This item has not been addressed. The impacts to the wetland buffers (25-foot wetland setbacks) shall be indicated and quantified on the Plan. The wetland buffer impact information (i.e., calculated area in square feet) associated with the proposed disturbance to the 25-foot wetland setbacks is necessary in order to complete an Authorization to Encroach the Regulated 25-Foot Wetland Setback at the time of project permitting. This information should be provided on the Final Site Plan.***

Permits

It appears as though a City of Novi Wetland and Watercourse Minor Use Permit and an Authorization to Encroach the 25-Foot Natural Features/Wetland Setback would be required for the proposed impacts. It does not appear that a MDEQ Wetland Permit is required.

The Meadows of Island Lake of Novi  
Wetland Review of the Revised Preliminary Site Plan (JSP12-0065)  
January 21, 2013  
Page 4 of 5

**Recommendation**

ECT recommends conditional approval of the Revised Preliminary Site Plan with the condition that the above comments be satisfactorily addressed in the Final Site Plan.

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

Respectfully submitted,

**ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.**

A handwritten signature in black ink, appearing to read "Pete Hill", enclosed in a thin rectangular border.

Pete Hill, P.E.  
Senior Associate Engineer

cc: David Beschke, City of Novi, Licensed Landscape Architect  
Kristen Kapelanski, AICP, City of Novi Planner  
Angela Pawlowski, City of Novi, Senior Customer Service

---

Attachments: Figure 1



Figure 1. Approximate wetland locations.



WOODLAND REVIEW



Environmental Consulting & Technology, Inc.

January 21, 2013

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

Re: The Meadows of Island Lake of Novi  
Woodland Review of the Revised Preliminary Site Plan  
JSP12-0065

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan (Plan) for the proposed *The Meadows of Island Lake of Novi* project prepared by Alpine Engineering, Inc. dated December 21, 2012. The Plan and supporting documentation were reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37.

The proposed development is located north of Ten Mile Road and east of Wixom Road in Section 20. The proposed project involves the construction of a 2-phase site condominium development (totaling 74 units), associated roads and utilities and two stormwater detention basins.

What follows is a summary of our findings regarding on-site woodlands associated with the proposed project.

Onsite Woodland Evaluation

ECT has previously reviewed the City of Novi Official Woodlands Map and completed an onsite Woodland Evaluation on December 4, 2012. ECT found that the information provided on the *Tree List* (Sheet L-6) appears to accurately depict the location, species composition and the size of the existing trees. ECT took numerous diameter-at-breast-height (d.b.h.) measurements and found that the data provided in the *Tree List* was consistent with the field measurements. The surveyed trees have been marked with metal tags on fishing line, allowing ECT to compare the reported diameters to the existing tree diameters in the field.

The entire site is just over 40 acres with regulated woodland mapped across several areas on the western side of the property. The site contains sections of relatively-open field as well as the existing Dinsler's Nursery on the northern portion of the site. On-site woodland is dominated by black cherry, box elder, cottonwood, silver maple, black walnut and several other species. Several large black walnut (*Juglans nigra*) trees are located along Dinsler Street in the southeast corner of the property. These trees range from 7-inches d.b.h. to 33-inches d.b.h. The Plan currently proposes to preserve these high-quality black walnut trees.

2200 Commonwealth  
Boulevard, Suite 300  
Ann Arbor, MI  
48105

(734)  
769-3004

FAX (734)  
769-3164

An Equal Opportunity/Affirmative Action Employer

#### Woodland Impact Review

Per summary calculations on the *Woodland Plan* (Sheet L-5), the current Plan proposes the removal of 143 live trees with d.b.h. greater than or equal to 8 inches, requiring a total of 220 replacement credits. The Plan states that 180 Woodland Credits can be achieved via preservation of Non-Woodland Trees. This results in a total of 40 Woodland Replacement Trees required, according to the Plan.

After review of the *Tree List* (Sheet L-6), ECT tallied a total of 141 regulated trees to be removed (several of these trees have multiple stems). In addition, ECT tallied a total of 220 Woodland Replacement Trees required. This is consistent with the quantity shown on the *Woodland Plan* (Sheet L-5).

#### Woodland Replacement Review

The Plan is seeking a total of 180 Woodland Replacement Credits for the preservation of Non-Woodland Trees. This information is found on the *Tree List* (Sheet L-5). Based on our tally of 220 Woodland Replacements required, less the 180 Woodland Credits of Non-Woodland Tree Preservation, it appears as though the Applicant would be responsible for a total of 40 Woodland Replacement Trees. Currently, the Plan appears to propose 30 Woodland Replacement trees (8 sugar maple, 8 tulip tree, 7 red oak and 7 silver linden) to be located around the Proposed Detention Basin No. 1 in the northwest corner of the property. It is currently not clear where the remaining 10 required Woodland Replacement Tree requirements will be planted, or if the Applicant intends to pay into the City of Novi Tree Fund for the remaining required credits.

#### Comments

The following are repeat comments from ECT's Woodland Review of the Preliminary Site Plan Letter dated December 4, 2012. The current status of each comment follows in ***bold italics***. It should be noted that the Applicant's Engineer stated in their preliminary site plan review response letter dated December 21, 2012 that the woodland items noted in our previous review letter would be addressed at the time of Final Site Plan.

1. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch d.b.h. or greater. Such trees shall be relocated or replaced by the permit grantee. All replacement trees shall be two and one-half (2 ½) inches caliper or greater.

***This comment continues to be applicable.***

2. One of the species listed in the *Replacement Tree List* on the *Landscape Plan* (Sheet No. L-1) is not acceptable as a Woodland Replacement Tree in Novi. This species, Silver Linden (*Tilia tomentosa*) is not listed as an accepted species in the City of Novi's *Woodland Tree Replacement Chart* found in the Woodland Ordinance (Chapter 37) or in the *Suggested Plant Materials List* found in the City of Novi's *Landscape Design Manual*. This should be addressed in subsequent site plan submittals.

Refer to the *Woodland Tree Replacement Chart* and *Reforestation Credit Table* in the Woodland Ordinance for guidance on acceptable native tree species and other types of native woodland vegetation that can count toward woodland replacement credits.

*This comment continues to be applicable and should be addressed in the Final Site Plan.*

3. ECT suggests that the Applicant review the number of Regulated Woodland Trees being removed as well as the number of Woodland Replacement Trees required and make any revisions to the Plan, as necessary.

*This comment no longer applies.*

4. The Applicant will be required to pay the City of Novi Tree Fund at a value of \$400/credit for any Woodland Replacement tree credits that cannot be placed on-site.

*This comment continues to be applicable. Currently, the Plan proposes 30 Woodland Replacement trees (8 sugar maple, 8 tulip tree, 7 red oak and 7 silver linden) to be located around the Proposed Detention Basin No. 1 in the northwest corner of the property. It is currently not clear where the remaining 10 required Woodland Replacement Trees will be planted. Please indicate on the Final Site Plan whether or not all 40 replacement trees are being placed on-site, or if some of the required credits will be paid into the City of Novi Tree Fund.*

**Recommendation**

ECT recommends approval of the Revised Preliminary Site Plan for Woodlands, contingent upon the Applicant satisfactorily addressing the comments outlined above.

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

Respectfully submitted,

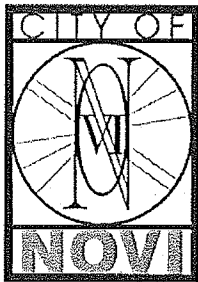
ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Pete Hill, P.E.  
Senior Associate Engineer

cc: David Beschke, City of Novi, Licensed Landscape Architect  
Kristen Kapelanski, AICP, City of Novi Planner  
Angela Pawlowski, City of Novi, Senior Customer Service

**FIRE REVIEW**



October 19, 2012  
November 20, 2012  
**January 18, 2013 REVISED**

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

RE: Meadows of Island Lake of Novi

SP#: JSP12-0065

**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

Assistant Chief of Police  
Victor C.M. Lauria

Assistant Chief of Police  
Jerrold S. Hart

**Project Description:**

Proposed construction and/or addition of 75 Residential Lots, in Phase #1 & #2.

**Comments:**

All water mains and fire hydrant spacing appear to conform to roadway and distance requirements.

All Fire Apparatus turning radius distances conform to AHJ requirements of 50' outside & 30' inside turning radii.

Secondary Emergency Access, as required by Novi Ordinance is acceptable using Acorn Trail Dr to the north of phase #2.

**Recommendation:**

The above plan has been reviewed and is recommended for Approval.

Complete engineering plans would need to be reviewed for a full approval prior to construction. This item is addressed in Alpine Engineering's response letter dated 12/21/2012.

This review is consistent with previous reviews dated Oct 19<sup>th</sup>, Nov 20 2012.

Sincerely,

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

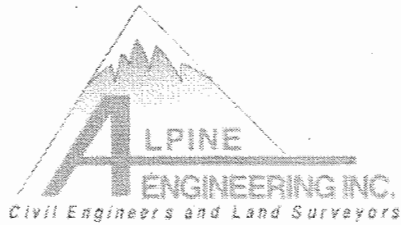
cityofnovi.org

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

cc: file

**APPLICANT RESPONSE LETTER**





46892 West Road, Suite 109  
Novi, Michigan 48377  
Phone: 248-926-3701  
Fax: 248-926-3765

February 5, 2013

Kristen Kapelanski, AICP  
City of Novi Community Development Department  
45175 West 10 Mile Road  
Novi, Michigan 48375

Re: **The Meadows of Island Lake of Novi**  
**Island Lake RUD Expansion**  
**Revised Preliminary Site Plan Submittal**  
**(City of Novi Review JSP#12-65)**

Dear Kristen:

We have reviewed all the comments in the staff and consultant review letters and understand that the letters recommend approval of the Preliminary Site Plan. We are in agreement with the comments which will be addressed as part of the Final Site Plan. Furthermore, the applicant agrees to not increase the total units allowed to 916 units in the entire Island Lake of Novi RUD development as requested.

Enclosed, please find eleven (11) sets of the previously submitted Preliminary Site Plan drawings, dated December 21, 2012, with no changes or revisions made and a cd with pdf's of the plans for the February 13, 2013 public hearing and Planning Commission consideration.

If you have any questions or require additional information please feel free to call our office at (248) 926-3701.

Regards,  
Alpine Engineering, Inc.

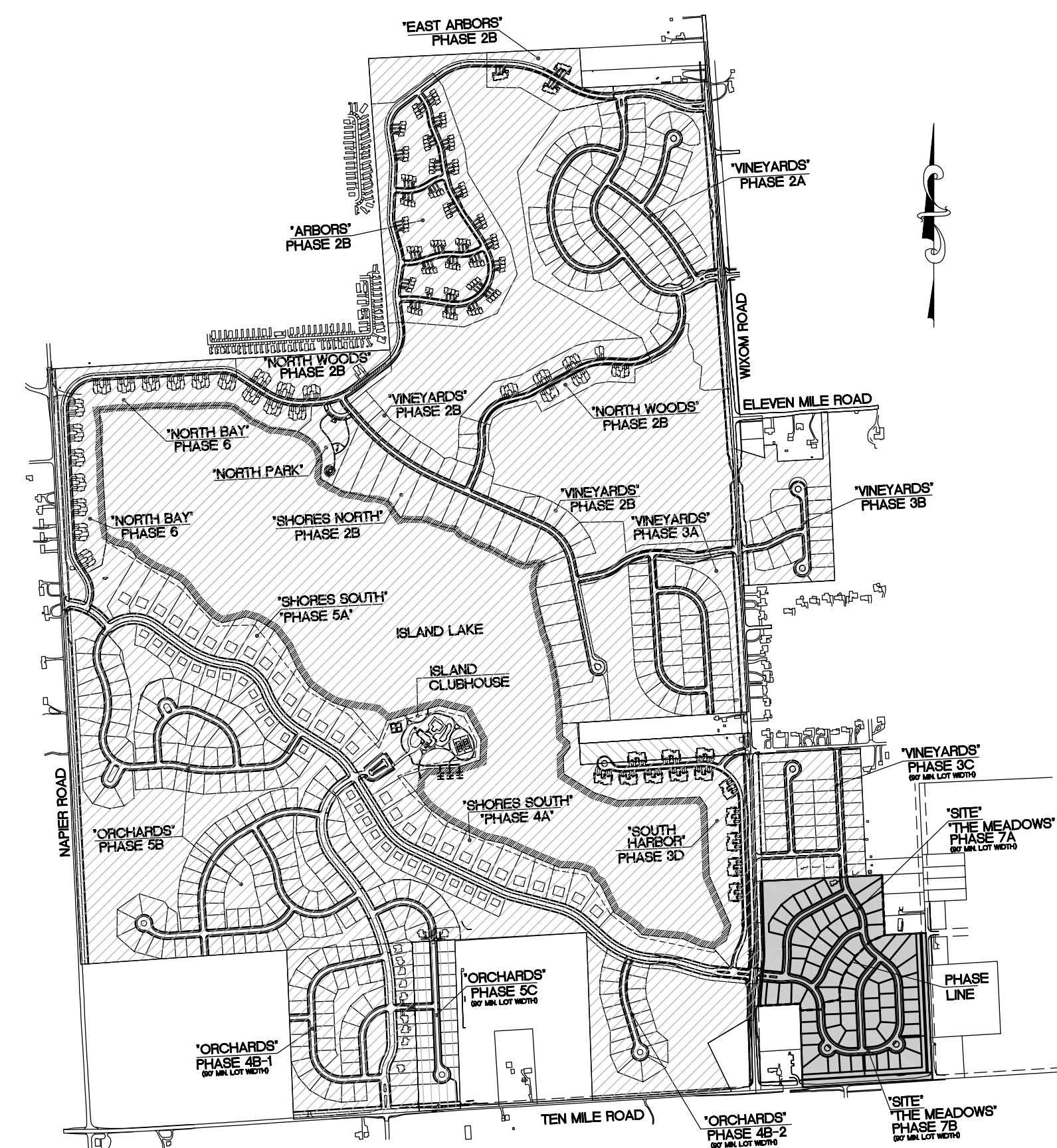


Tom Gizoni, PE

Enclosures:

cc: Mike Noles, Toll Bros., Inc.  
Jason Minock, Toll Bros., Inc.





SCALE: 1"=1000'

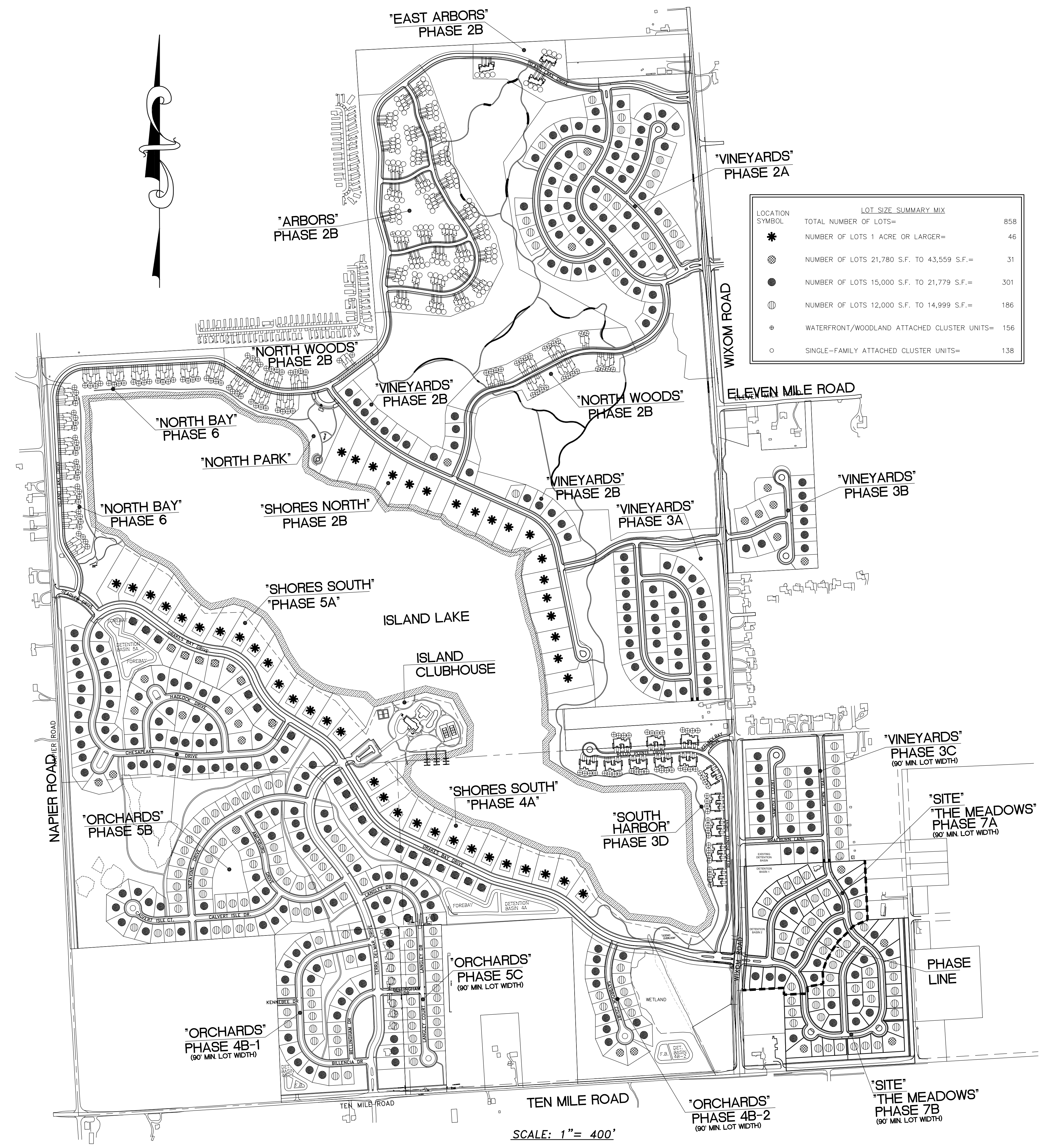
PARCEL	SIZE	RUD ACTUAL UNITS	RUD ALLOWABLE UNITS
ORIGINAL PARCEL	901 ACRES	750	876
DEATON PARCEL	5 ACRES	12	
PHASE 5C	10 ACRES	22	8 (ADDITIONAL)
THE MEADOWS	40.7 ACRES	74	32 (ADDITIONAL)

TOTAL ACTUAL UNITS - 858  
 TOTAL ALLOWABLE UNITS - 916  
 TOTAL AREA - 956.7 ACRES

\*BLENDED DENSITY CHART BASED ON UNDERLYING ZONING OF R-1 AND RA

ZONING	AREA	DENSITY PERMITTED	UNITS
R-1	226 AC.	1.65 DU/AC	372.9 DU
RA	730.7 AC.	0.8 DU/AC	584.5 DU
TOTAL	956.7 AC.	1.00 DU/AC	957 DU

\*BASED UPON A REVIEW OF THE CITY OF NOVI ZONING MAP, THE NORTHERN PORTION OF THE ISLAND RUD AREA IS R-1 ZONING. WE ESTIMATE THE AREA AS APPROXIMATELY 226 ACRES. THE REMAINING ISLAND LAKE RUD AREA IS ZONED RA AND WE ESTIMATE THE AREA AS 730.7 ACRES.



SCALE: 1"= 400'

LOCATION SYMBOL	LOT SIZE SUMMARY MIX	
*	TOTAL NUMBER OF LOTS=	858
*	NUMBER OF LOTS 1 ACRE OR LARGER=	46
⊗	NUMBER OF LOTS 21,780 S.F. TO 43,559 S.F.=	31
●	NUMBER OF LOTS 15,000 S.F. TO 21,779 S.F.=	301
⊕	NUMBER OF LOTS 12,000 S.F. TO 14,999 S.F.=	186
⊖	WATERFRONT/WOODLAND ATTACHED CLUSTER UNITS=	156
○	SINGLE-FAMILY ATTACHED CLUSTER UNITS=	138

**NOTICE:**  
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

**NOTE:**  
 THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

ALPINE ENGINEERING, INC.  
 CIVIL ENGINEERS & LAND SURVEYORS

COMMERCIAL  
 SITE PLANNING  
 SITE ENGINEERING  
 INDUSTRIAL & MULTI-UNIT  
 LAND SURVEYING  
 CONSTRUCTION LAYOUT

SURVEYING  
 ALTA SURVEYS  
 BOUNDARY SURVEYS  
 TOPOGRAPHIC SURVEYS  
 PARCEL SPLITS  
 CONSTRUCTION LAYOUT

RESIDENTIAL  
 SUBDIVISIONS  
 SITE CONDOMINIUM  
 MULTI-FAMILY  
 PLOT PLANS  
 CONSTRUCTION LAYOUT

46892 WEST ROAD  
 SUITE 109  
 NOVI, MICHIGAN 48377

(248) 928-3701 (BUS)  
 (248) 928-3765 (FAX)  
 WWW.ALPINE-INC.NET

811  
 Know what's below  
 Call before you dig.

TOLL BROTHERS INC.

OVERALL PRELIMINARY SITE PLAN

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
 TOWNSHIP: 1 N  
 RANGE: 8 E  
 CITY OF NOVI  
 OAKLAND COUNTY  
 MICHIGAN  
 SECTION: 20

CLIENT:

REVISED  
 2012-10-17 PRE-APP. SUBMISSION  
 2012-11-09 PSP SUBMISSION  
 2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08

DRAWN BY: JP/TG

CHECKED BY: TG

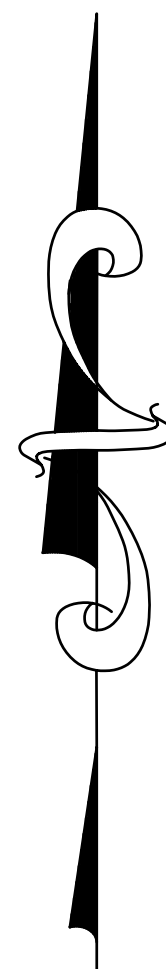
SCALE: AS NOTED

FBK:

CHF:

SCALE: HOR 1"= FT.  
 VER 1"= FT.

2  
 12-362



ISLAND LAKE SOUTH HARBOR ZONED RUD RA RESIDENTIAL ACREAGE

PRO. PAINTED CROSSWALK AND BARRIER FREE CURB CUTS (DESIGN TO MATCH TWO (2) EXISTING PAINTED CROSSWALKS FURTHER NORTH ON WIXOM ROAD)

**BENCHMARKS:**  
 BM1 RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM  
 BM2 RAILROAD SPIKE IN WEST FACE OF UTILITY POLE AT NORTHEAST CORNER OF DINSER ROAD AND 10 MILE ROAD. ELEVATION=960.38 N.A.V.D. 88 DATUM  
 BM3 ARROW ON HYDRANT ON EAST SIDE OF WIXOM ROAD AT INTERSECTION OF WIXOM ROAD AND DRAKES BAY DRIVE. ELEVATION=962.12 N.A.V.D. 88 DATUM  
 BM4 ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL SOUTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM  
 BM5 ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

**NOTICE:**  
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

**NOTE:**  
 THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

ISLAND LAKE ORCHARDS ZONED RUD RA RESIDENTIAL ACREAGE

PRO. 538' OF OFF-SITE 8' WIDE PATH IN CURRENT WIXOM ROAD RIGHT-OF-WAY

PRO. 390' OF OFF-SITE 8' WIDE PATH IN CURRENT WIXOM ROAD RIGHT-OF-WAY

PRO. 6' WIDE WALK

PRO. 12' WIDE SIDEWALK-EASEMENT

EXISTING CROSSWALK

EXISTING 60' HALF RIGHT-OF-WAY

EXISTING 60' HALF RIGHT-OF-WAY

EXISTING 60' HALF RIGHT-OF-WAY

EXISTING 60' HALF RIGHT-OF-WAY



**PROPOSED IMPROVEMENTS:**  
 1. MUNICIPAL SEWER TO BE PROVIDED BY CONNECTING TO EXISTING 10" DIAMETER SEWER AT WEST SIDE OF WIXOM ROAD.  
 2. MUNICIPAL WATER TO BE PROVIDED BY CONNECTING TO EXISTING 12" DIAMETER WATER MAIN AT EAST SIDE OF WIXOM ROAD AND 8" DIAMETER STUB AT ACORN TRAIL.  
 3. STORM WATER DETENTION SHALL BE PROVIDED PER CITY OF NOVI REQUIREMENTS.  
 4. 5' WIDE CONCRETE SIDEWALKS SHALL BE CONSTRUCTED ON BOTH SIDES OF ALL INTERIOR ROADS.  
 5. ALL ROADWAYS TO BE PUBLIC UNLESS OTHERWISE NOTED.  
 6. CITY OF NOVI RIGHT-OF-WAY PERMIT IS REQUIRED FOR WORK WITHIN ANY PUBLIC ROAD RIGHT-OF-WAY.  
 7. DECORATIVE STREET SIGNS ARE NOT ALLOWED WITHOUT A LICENSE AGREEMENT WITH THE CITY OF NOVI.

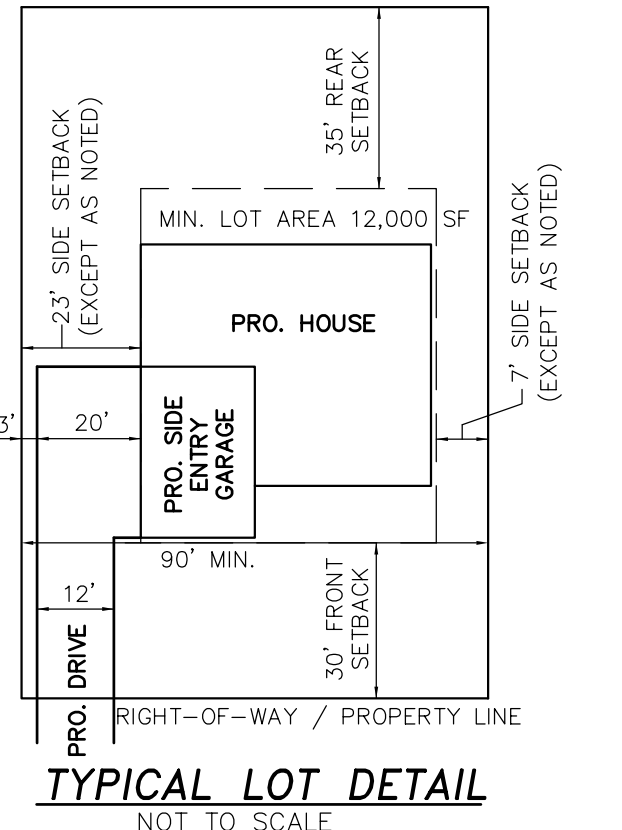
**PROPRIETOR:**  
 TOLL BROTHERS INC.  
 29665 WILLIAM K. SMITH DRIVE, SUITE B  
 NEW HUDSON, MI 48165  
 PHONE: 248-446-5104

**SITE DATA:**  
 EXISTING ZONING: RA - RESIDENTIAL ACREAGE  
 PROPOSED ZONING: RUD  
 ISLAND LAKE RUD SITE AREA (TOTAL): 956.7 ACRES  
 PROPOSED ADDITIONAL LAND AREA (SITE): 40.68 ACRES GROSS, 37.81 ACRES NET  
 LOTS SHOWN: 74 LOTS (858 ENTIRE RUD)  
 DENSITY SHOWN: 0.90 LOTS PER ACRE  
 RUD LOTS APPROVED: 884 LOTS  
 ADDITIONAL RUD LOTS PROPOSED: 32 LOTS (0.8 UNITS/ACRE X 40.68 ACRES)  
 TOTAL RUD LOTS: 916 LOTS

FOR SINGLE FAMILY DETACHED NON WATERFRONT HOMES:  
 LOT WIDTH FRONT YARD SETBACK REAR YARD SETBACK MINIMUM/COMBINED SIDE YARD SETBACK  
 150 FEET & GREATER 45 FT. 50 FT. 20 FT. / 50 FT.  
 120 FEET & GREATER 30 FT. 35 FT. 15 FT. / 40 FT.  
 110 FEET & GREATER 30 FT. 35 FT. 15 FT. / 40 FT.  
 90 FEET & GREATER 30 FT. 35 FT. 15 FT. / 30 FT.

MINIMUM SIDE YARD SETBACK REQUIRED IS 10 FT. MINOR VARIANCE REQUIRED FOR PROPOSED MINIMUM SIDE YARD SETBACK OF 7 FT. MAINTAIN MINIMUM HOUSE SEPARATION OF 20 FT.  
 LOTS SHALL HAVE A MINIMUM AREA OF 12,000 SQUARE FEET AND A MINIMUM WIDTH OF 90 FEET.

LOT NUMBER	LOT AREA (SF)	LOT WIDTH AT SETBACK (FT)	REQUIRED FRONT YARD SETBACK (FT)	REQUIRED REAR YARD SETBACK (FT)	MINIMUM SIDE YARD SETBACK (FT)	COMBINED SIDE YARD SETBACK (FT)
1	13,642	90.00	30	35	7	30
2	13,707	90.00	30	35	7	30
3	13,628	90.00	30	35	7	30
4	12,688	90.50	30	35	7	30
5	12,324	90.50	30	35	7	30
6	12,324	90.50	30	35	7	30
7	23,411	139.78	30	35	15	40
8	21,770	93.09	30	35	7	30
9	18,373	90.00	30	35	7	30
10	14,050	90.00	30	35	7	30
11	14,430	120.05	30	35	15	40
12	16,082	142.52	30	35	15	40
13	12,074	95.56	30	35	7	30
14	13,312	109.50	30	35	7	30
15	17,141	147.38	30	35	15	40
16	16,065	123.25	30	35	15	40
17	15,028	108.10	30	35	7	30
18	13,428	94.11	30	35	7	30
19	14,190	94.11	30	35	7	30
20	13,817	94.16	30	35	7	30
21	13,639	95.30	30	35	7	30
22	15,250	108.06	30	35	7	30
23	14,133	109.08	30	35	7	30
24	12,846	100.00	30	35	7	30
25	14,418	100.00	30	35	7	30
26	18,463	132.18	30	35	15	40
27	18,995	133.87	30	35	15	40
28	13,721	105.04	30	35	7	30
29	13,818	97.92	30	35	7	30
30	14,739	148.01	30	35	15	40
31	15,953	122.21	30	35	15	40
32	16,957	96.00	30	35	7	30
33	17,339	96.79	30	35	7	30
34	14,997	109.80	30	35	7	30
35	20,715	90.00	30	35	7	30
36	28,719	90.00	30	35	7	30
37	17,042	90.00	30	35	7	30
38	12,650	90.00	30	35	7	30
39	12,000	96.00	30	35	7	30
40	12,000	96.00	30	35	7	30
41	12,030	96.03	30	35	7	30
42	12,727	95.07	30	35	7	30
43	13,708	90.33	30	35	7	30
44	23,232	90.00	30	35	7	30
45	12,030	93.45	30	35	7	30
46	12,368	93.19	30	35	7	30
47	12,015	96.00	30	35	7	30
48	12,002	96.00	30	35	7	30
49	12,004	92.83	30	35	7	30
50	12,687	91.84	30	35	7	30
51	23,101	90.00	30	35	7	30
52	17,636	90.00	30	35	7	30
53	13,654	90.04	30	35	7	30
54	12,016	91.23	30	35	7	30
55	12,012	93.56	30	35	7	30
56	12,857	96.48	30	35	7	30
57	12,042	102.00	30	35	7	30
58	14,775	139.20	30	35	15	40
59	16,641	141.04	30	35	15	40
60	15,957	134.86	30	35	15	40
61	12,000	96.00	30	35	7	30
62	12,773	95.43	30	35	7	30
63	13,649	98.58	30	35	7	30
64	12,790	97.48	30	35	7	30
65	14,031	109.90	30	35	7	30
66	15,888	146.64	30	35	15	40
67	12,000	96.00	30	35	7	30
68	16,851	141.81	30	35	15	40
69	17,690	149.50	30	35	15	40
70	15,097	142.00	30	35	15	40
71	14,599	120.24	30	35	15	40
72	13,657	109.26	30	35	7	30
73	12,505	109.25	30	35	7	30
74	16,781	136.93	30	35	15	40



**OPEN SPACE HATCH LEGEND**  
 PROPOSED OPEN SPACE AREA= 4.71 ACRES  
 PROPOSED OPEN SPACE PARK AREA= 0.27 ACRES

**OPEN SPACE CALCULATIONS**  
 OPEN SPACE AREA PROVIDED= 4.98 ACRES (13.17% OF NET PARCEL AREA)

**NOTE:**  
 LOT WIDTH IS THE STRAIGHT LINE DISTANCE BETWEEN THE SIDE LOT LINES, MEASURED AT THE TWO POINTS WHERE THE MINIMUM YARD SETBACK LINE INTERSECTS THE SIDE LOT LINES.

**PHASING**  
 TWO (2) PHASE DEVELOPMENT IS PROPOSED.  
 PHASE 7A: 33 UNITS  
 PHASE 7B: 41 UNITS

STATEMENT REGARDING THE PROPOSED MECHANISM TO ASSURE THE PERMANENT PRESERVATION AND MAINTENANCE OF OPEN SPACE AREAS, RUD AMENITIES AND COMMON AREAS: CONSERVATION EASEMENTS ARE IN PLACE TO PROTECT THE NATURAL FEATURES AND ALL COMMON AREAS HAVE BEEN CONVEYED TO THE VARIOUS HOMEOWNERS ASSOCIATIONS WITHIN THE RUD AS PERMANENT OPEN SPACES PER THE REQUIREMENTS OF THE RUD APPROVED IN 1998. NEW COMMON AREAS BEING PROPOSED WILL LIKEWISE BE CONVEYED. THERE IS NO MECHANISM IN PLACE THAT WOULD ALLOW THESE WELL ESTABLISHED COMMON AREAS TO BE CONVERTED TO DEVELOPMENT AREAS AT ANY FUTURE TIME. THEIR STATUS AS COMMON ELEMENTS IS WELL ESTABLISHED IN THE MASTER DEED AND BYLAWS. NO CHANGES TO THESE MECHANISMS ARE BEING PROPOSED.

STATEMENT REGARDING THE EXPECTED POPULATION FOR THE AMENDED RUD: THE CITY OF NOVI MASTER PLAN FOR LAND USE SHOWS 2.52 PERSONS PER HOUSEHOLD. THE EXPECTED POPULATION AT THIS TIME IS: 858 UNITS X 2.52 PERSONS = 2,162 PERSONS (INCLUSIVE OF THIS PROPOSAL).

THE ALLOWABLE POPULATION UNDER THE ORIGINAL APPROVAL PLUS AMENDMENTS TO DATE IS: 916 UNITS X 2.52 PERSONS = 2,308 PERSONS (NEW PROPERTY WOULD HAVE TO BE ADDED TO ACCOMMODATE ANY ADDITIONAL UNITS BEYOND THE CURRENT PROPOSAL. THE CITY REQUIRED STUB STREETS AND UTILITY STUBS TO BE INCLUDED IN THE PLANS FOR THOSE TYPES OF POTENTIAL EXPANSIONS)

COMMERCIAL SITE PLANNING SITE ENGINEERING INDUSTRIAL & MULTI-UNIT LAND SURVEYING CONSTRUCTION LAYOUT

SURVEYING ALTA SURVEYS BOUNDARY SURVEYS TOPOGRAPHIC SURVEYS PARCEL SPLITS

RESIDENTIAL SUBDIVISIONS SITE CONDOMINIUM MULTI-FAMILY PLOT PLANS CONSTRUCTION LAYOUT

**ALPINE ENGINEERING, INC.**  
 CIVIL ENGINEERS & LAND SURVEYORS

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46892 WEST ROAD  
 SUITE 109  
 NOVI, MICHIGAN 48377



TOLL BROTHERS INC.  
**PRELIMINARY SITE PLAN**  
 "THE MEADOWS" OF ISLAND LAKE OF NOVI  
 TOWNSHIP: 1 N  
 RANGE: 8 E  
 CITY OF NOVI  
 OAKLAND COUNTY  
 MICHIGAN  
 SECTION: 20

REVISIONS

2012-10-17 PRE-APP. SUBMISSION
2012-11-09 PSP SUBMISSION
2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08  
 DRAWN BY: JP/TG  
 CHECKED BY: TG

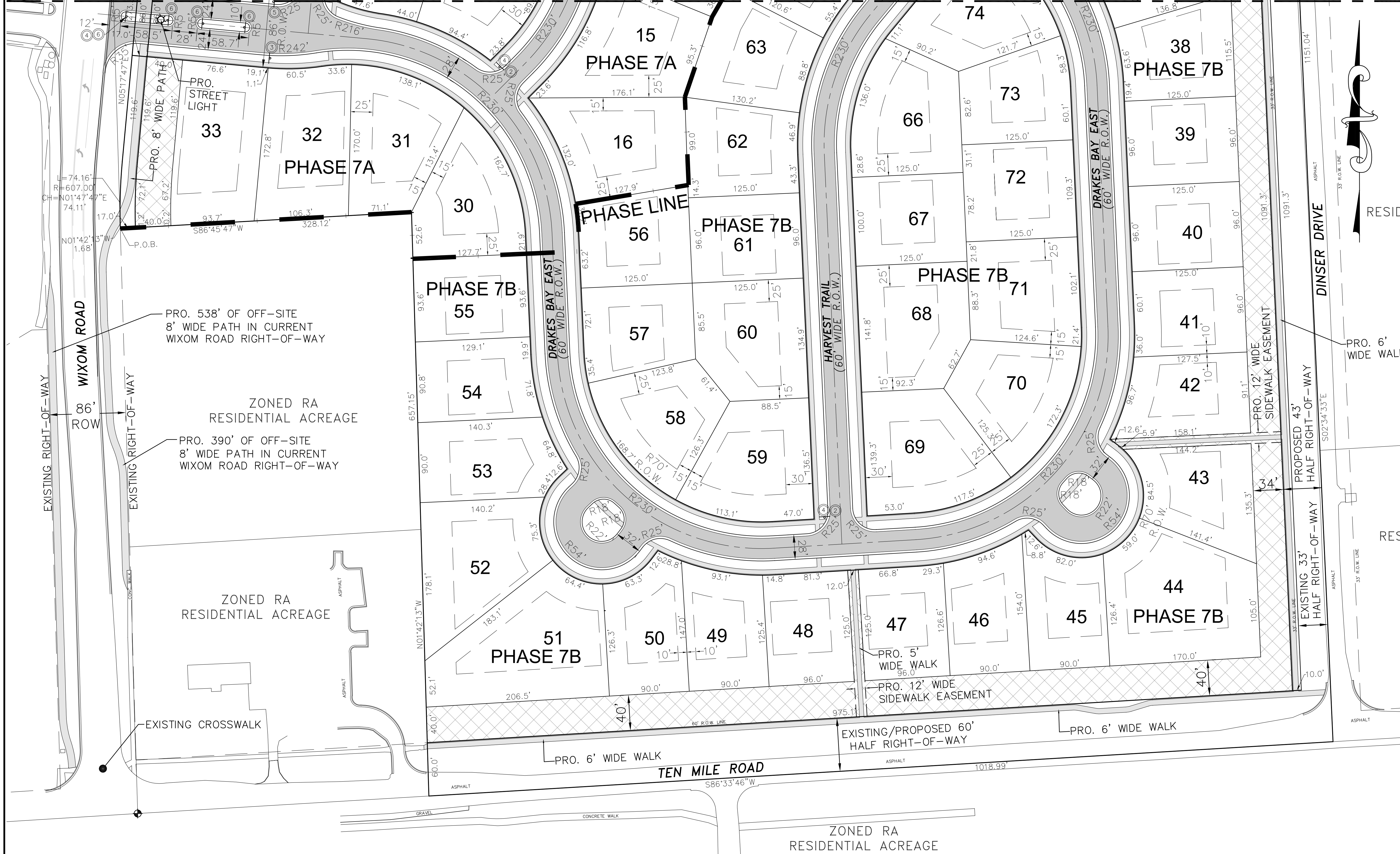
FBK: 3  
 CHP: 12-362

SCALE: HOR 1"=100 FT. VER 1"=10 FT.



MATCHLINE - SEE SHEET 4

MATCHLINE - SEE SHEET 4



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**PRELIMINARY SITE PLAN SOUTH**  
 "THE MEADOWS" OF ISLAND LAKE OF NOVI  
 SECTION: 20  
 TOWNSHIP: 1 N  
 CITY OF NOVI  
 OAKLAND COUNTY  
 MICHIGAN

**NOTICE:**  
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**LEGEND**

	EX. TREE TAG NO.		EX. POST
	EX. DECIDUOUS TREE		EX. SIGN
	EX. CONIFEROUS TREE		EX. PEDESTAL
	EX. TREE LINE		EX. LIGHT POLE
	EX. FENCE LINE		EX. TRANSFORMER
	APPROX. UNDERGROUND ELECTRIC		EX. UTILITY POLE
	EX. GAS FLAG		EX. GAS MARKER
	EX. GUY WIRE		EX. MANHOLE
	APPROX. UNDERGROUND GAS MAIN		EX. END SECTION
	EX. SANITARY SEWER		EX. CATCH BASIN
	EX. STORM SEWER		EX. GATE VALVE
	APPROX. WATER MAIN		EX. HYDRANT
	FOUND CAPPED IRON BAR		EX. WATER SHUT-OFF
	FOUND IRON BAR		EX. WELL
	FOUND MONUMENT		

**BENCHMARKS:**

BM1	RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM
BM4	ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL, SOUTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM
BM5	ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL, NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

**SIGN LEGEND**

SYMBOL	DESCRIPTION	QUANTITY	PANEL	POST
	R1-1 30" "STOP" SIGN	1	1	
	R1-2 "YIELD" SIGN	6	6	
	R2-1(25) "25 SPEED LIMIT" SIGN	1	1	
	D3-1 "STREET NAME" SIGN	7	0	
	R3-8 LANE USE CONTROL (LEFT OR STRAIGHT/RIGHT)	2	1	
	R4-7 KEEP RIGHT SIGN	4	4	

NOTES:  
 -MINIMUM SIGN MOUNTING HEIGHT SHALL BE 7 FEET ABOVE GRADE.  
 -ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

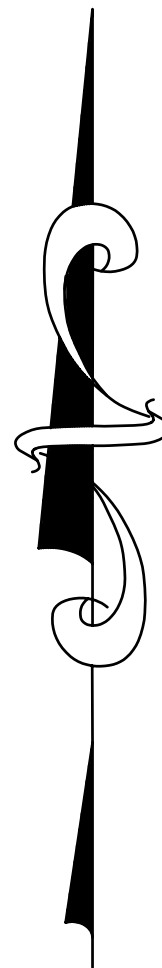
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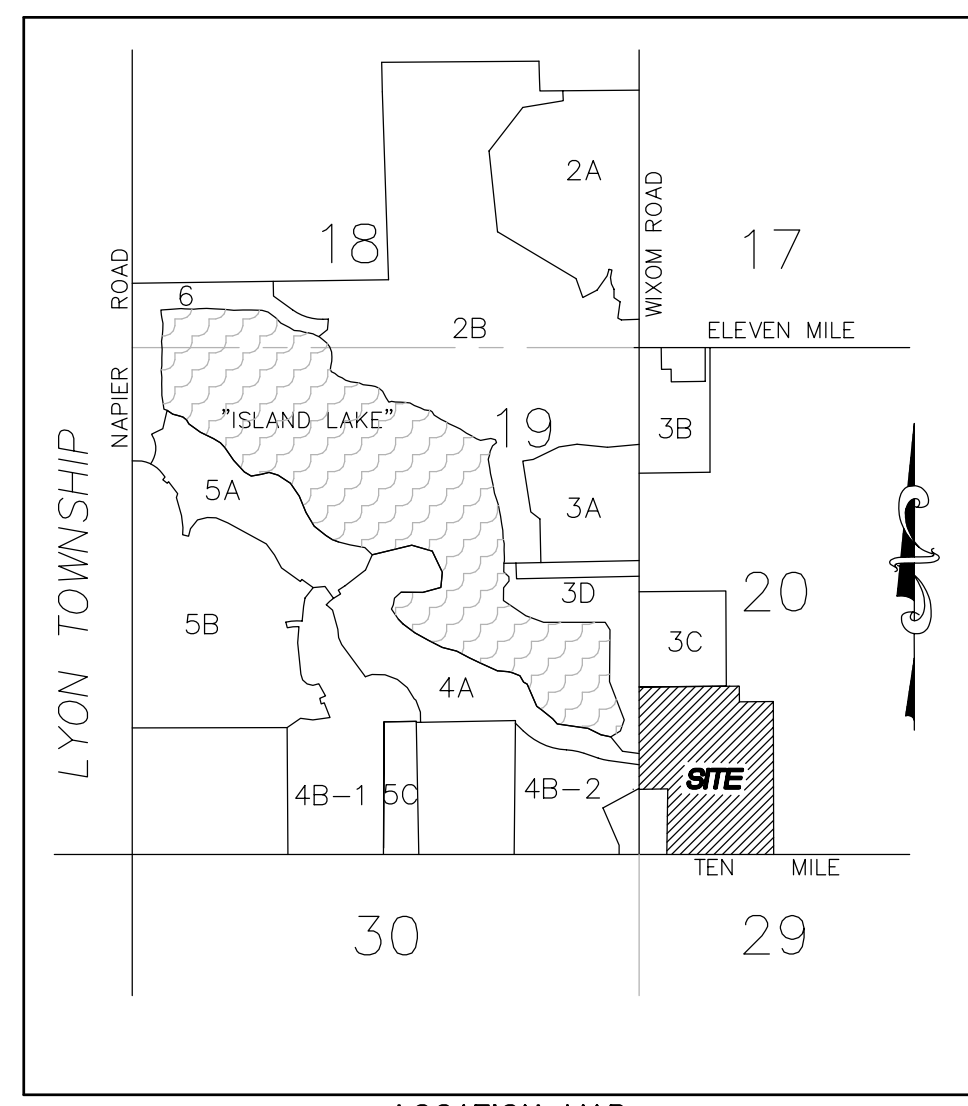
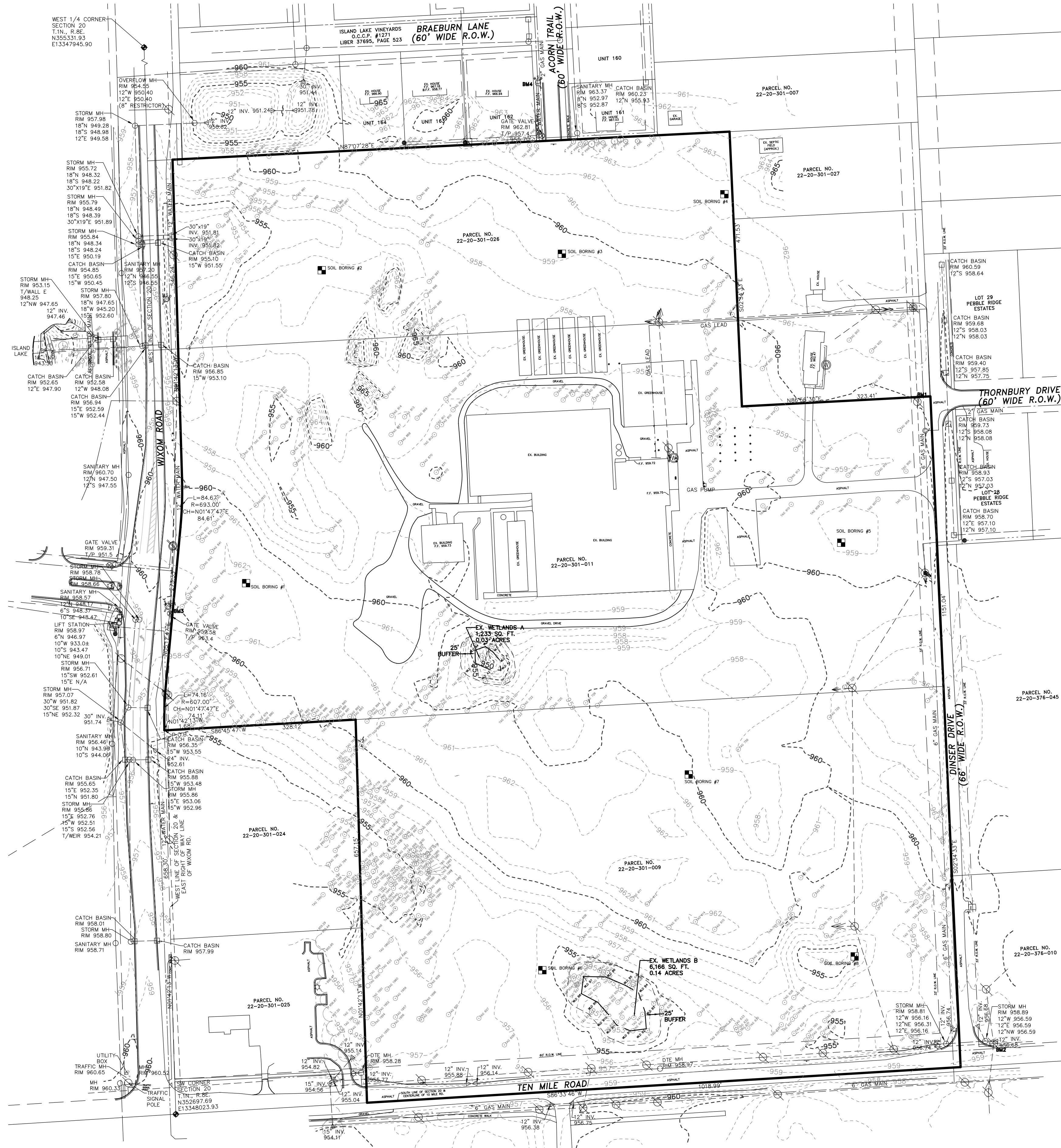


**LEGEND**

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- EX. TREE LINE
- EX. FENCE LINE
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- EX. GUY WIRE
- EX. UTILITY LINES
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- EX. STORM SEWER
- APPROX. WATER MAIN
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- FOUND MONUMENT
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- EX. SIGN
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**LEGAL DESCRIPTION:**  
A PART OF THE SOUTHWEST 1/4 OF SECTION 20, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 20; THENCE N01°42'13"W 658.30 FEET ALONG THE WEST LINE OF SAID SECTION 20 AND THE EAST RIGHT OF WAY LINE OF WIXOM ROAD TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID EAST RIGHT OF WAY LINE THE FOLLOWING FIVE COURSES: (1) N01°42'13"W 1.68 FEET; (2) 74.16 FEET ALONG THE ARC OF A 607.00 FOOT RADIUS CURVE TO THE RIGHT, CHORD BEARING N01°47'47"E 74.11 FEET; (3) N05°17'47"E 273.33 FEET; (4) 84.67 FEET ALONG THE ARC OF A 693.00 FOOT RADIUS CURVE TO THE LEFT, CHORD BEARING N01°47'47"E 84.61 FEET AND (5) N01°42'13"W 546.24 FEET TO THE SOUTHWEST CORNER OF ISLAND LAKE VINEYARDS, OAKLAND COUNTY CONDOMINIUM PLAN NO. 1271 AS RECORDED IN LIBER 37695, PAGE 523, OAKLAND COUNTY RECORDS; THENCE N87°07'28"E (RECORDED AS N87°07'49"E) 955.70 FEET ALONG THE SOUTH LINE OF SAID ISLAND LAKE VINEYARDS CONDOMINIUM; THENCE S02°34'33"E 471.53 FEET PARALLEL TO THE CENTERLINE OF DINSER ROAD; THENCE N86°56'30"E 323.41 FEET; THENCE S02°34'33"E 1151.04 FEET ALONG SAID CENTERLINE OF DINSER ROAD; THENCE S86°33'46"W 1018.99 FEET ALONG THE SOUTH LINE OF SAID SECTION 20 AND THE CENTERLINE OF 10 MILE ROAD; THENCE N01°42'13"W 657.15 FEET PARALLEL TO THE WEST LINE OF SAID SECTION 20; THENCE S86°45'47"W 328.12 FEET TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 40.677 ACRES. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE SOUTH 60 FEET THEREOF FOR TEN MILE ROAD AND THE EAST 33 FEET THEREOF FOR DINSER ROAD. ALL OF THE ABOVE BEING SUBJECT TO EASEMENTS, RESTRICTIONS AND RIGHT-OF-WAYS OF RECORD.

**BENCHMARKS:**  
BM1  
RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM  
BM2  
RAILROAD SPIKE IN WEST FACE OF UTILITY POLE AT NORTHEAST CORNER OF DINSER ROAD AND 10 MILE ROAD. ELEVATION=960.38 N.A.V.D. 88 DATUM  
BM3  
ARROW ON HYDRANT ON EAST SIDE OF WIXOM ROAD AT INTERSECTION OF WIXOM ROAD AND DRAKE'S BAY DRIVE. ELEVATION=962.12 N.A.V.D. 88 DATUM  
BM4  
ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL SOUTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM  
BM5  
ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

**NOTE:**  
APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCDOWELL & ASSOCIATES, DATED AUGUST 31, 2012.

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**OVERALL TOPOGRAPHIC SURVEY**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
SECTION: 20  
TOWNSHIP: 18 N  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN

---

REVISED

2012-10-17 PRE-APP SUBMISSION

2012-11-09 PSP SUBMITTAL

2012-12-21 PSP RE-SUBMISSION

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DATE: 2012-10-08

DRAWN BY: JF

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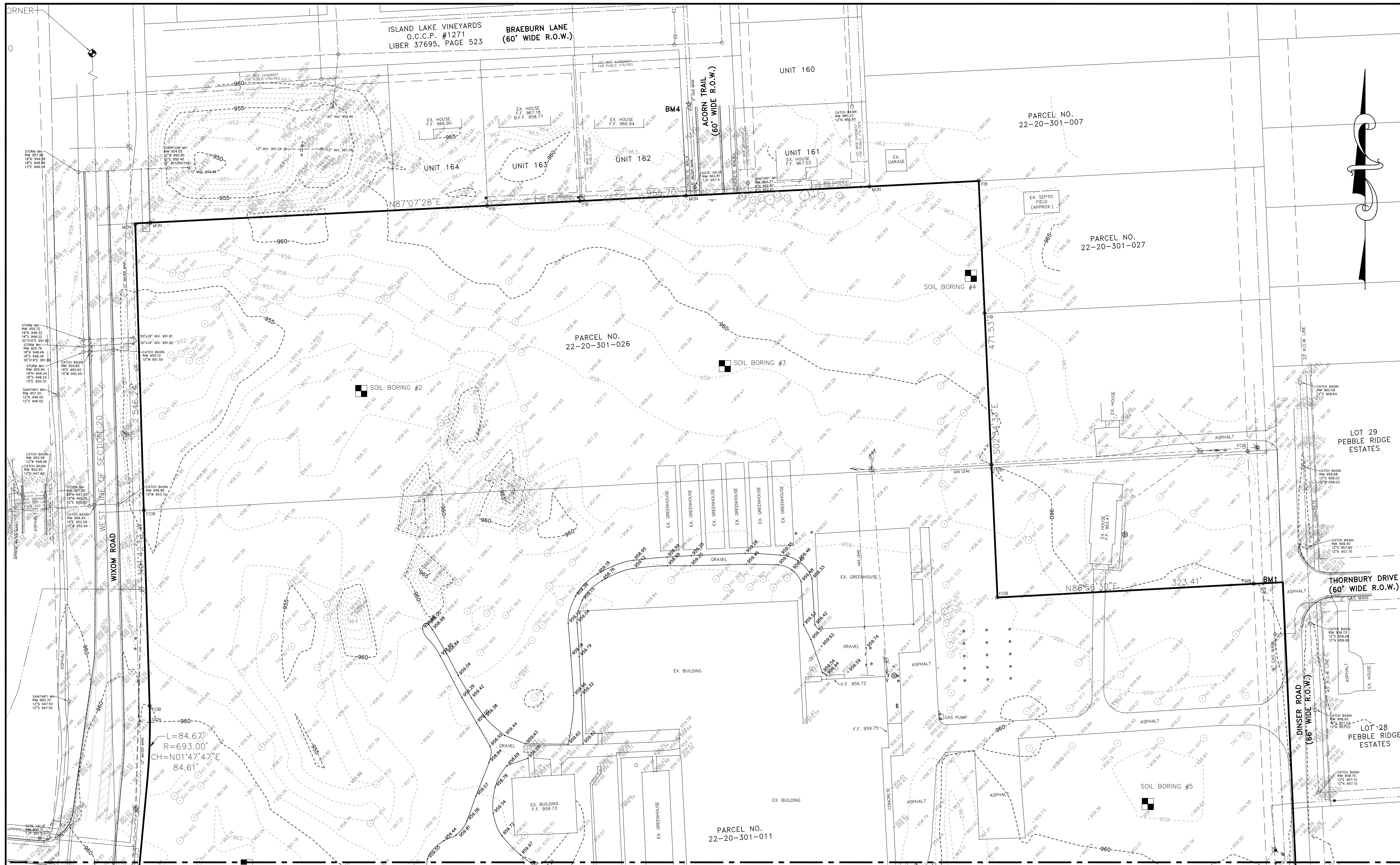
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SCALE: HOR 1"=100 FT.  
VER 1"=10 FT.

6

12-362



MATCHLINE - SEE SHEET 8

MATCHLINE - SEE SHEET 8

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SITE ENGINEERING  
INDUSTRIAL & MULTI-UNIT  
LAND SURVEYING  
CONSTRUCTION LAYOUT

SURVEYING  
ALTA SURVEYS  
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TOPOGRAPHIC SURVEYS  
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RESIDENTIAL  
SUBDIVISIONS  
SITE CONDOMINIUM  
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CONSTRUCTION LAYOUT

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2012-11-09 PSP SUBMISSION  
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DATE: 2012-10-08  
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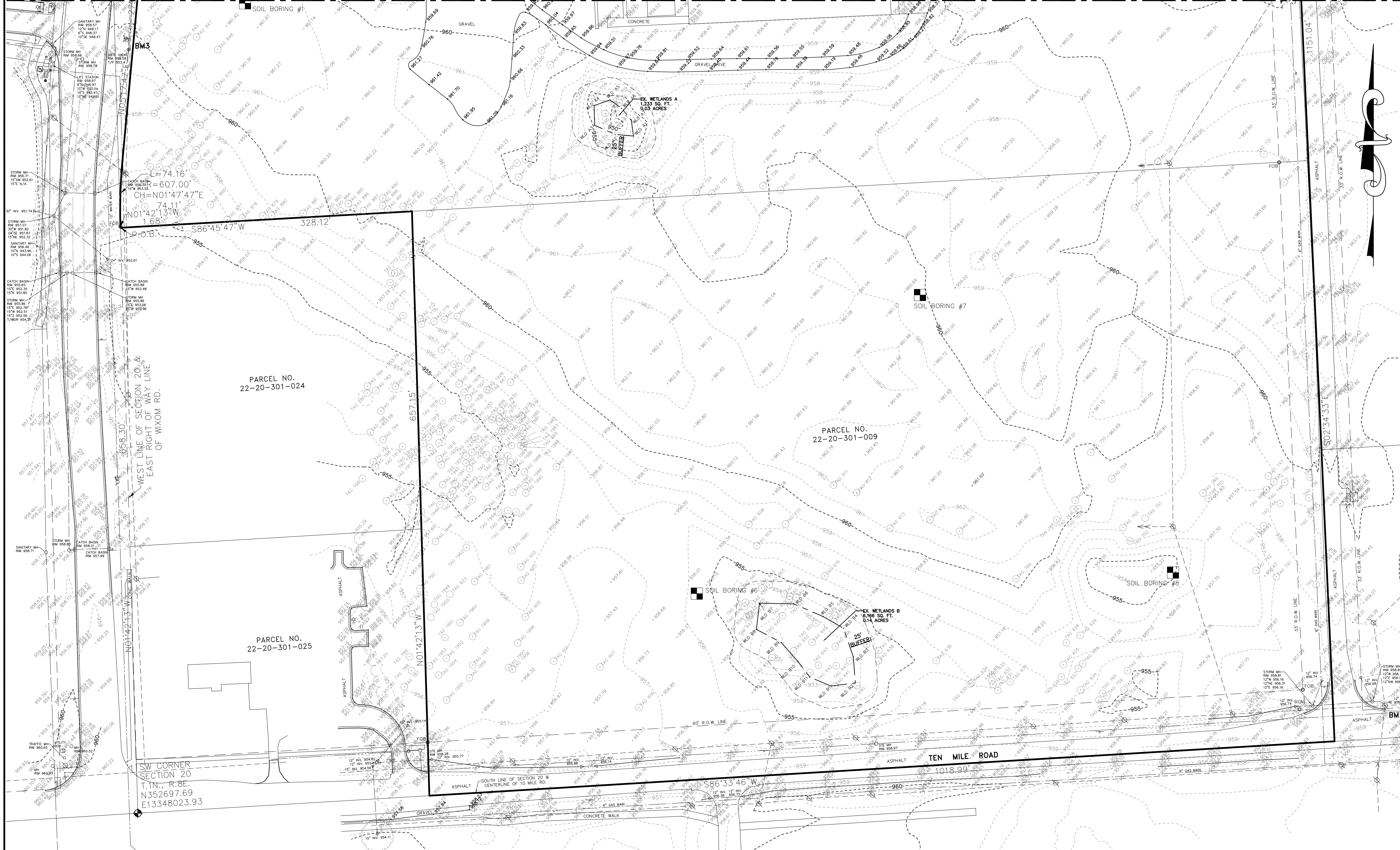
TOPOGRAPHIC SURVEY NORTH

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
SECTION: 20  
TOWNSHIP: 1 N  
RANGE: 8 E  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN



MATCHLINE - SEE SHEET 7

MATCHLINE - SEE SHEET 7



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	EX. HYDRANT
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	EX. WELL

**BENCHMARKS:**  
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ARROW ON HYDRANT ON EAST SIDE OF WIXOM ROAD AT INTERSECTION OF WIXOM ROAD AND DRAKES BAY DRIVE. ELEVATION=962.12 N.A.V.D. 88 DATUM

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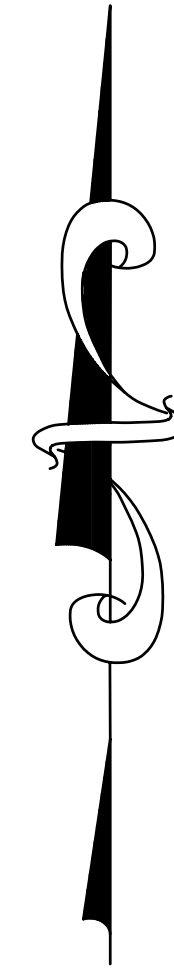
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**LEGEND**

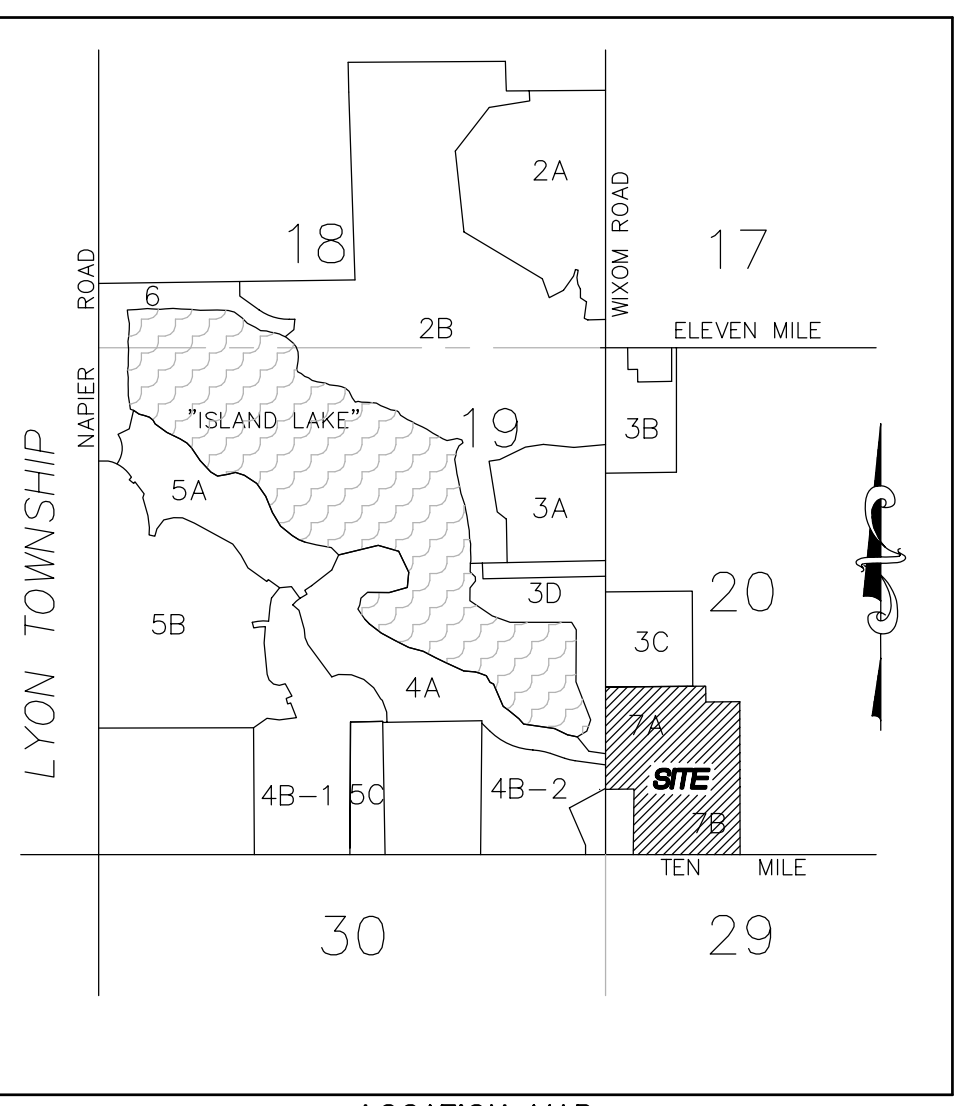
<ul style="list-style-type: none"> <li>○ EX. TREE TAG NO.</li> <li>○ EX. DECIDUOUS TREE</li> <li>○ EX. CONIFEROUS TREE</li> <li>○ EX. TREE LINE</li> <li>○ EX. FENCE LINE</li> <li>○ APPROX. UNDERGROUND ELECTRIC</li> <li>○ EX. GUY WIRE</li> <li>○ EX. UTILITY LINES</li> <li>○ APPROX. UNDERGROUND GAS MAIN</li> <li>○ EX. SANITARY SEWER</li> <li>○ EX. STORM SEWER</li> <li>○ APPROX. WATER MAIN</li> <li>○ FOUND CAPPED IRON BAR</li> <li>○ FOUND IRON BAR</li> <li>○ FOUND MONUMENT</li> <li>○ EX. POST</li> <li>○ EX. SIGN</li> <li>○ EX. PEDESTAL</li> <li>○ EX. LIGHT POLE</li> <li>○ EX. TRANSFORMER</li> <li>○ EX. UTILITY POLE</li> <li>○ EX. GAS FLAG</li> <li>○ EX. GAS MARKER</li> <li>○ EX. MANHOLE</li> <li>○ EX. END SECTION</li> <li>○ EX. CATCH BASIN</li> <li>○ EX. GATE VALVE</li> <li>○ EX. HYDRANT</li> <li>○ EX. WATER SHUT-OFF</li> <li>○ EX. WELL</li> </ul>	<ul style="list-style-type: none"> <li>FG</li> <li>WO</li> <li>DBL</li> </ul>	<ul style="list-style-type: none"> <li>FINISH GRADE</li> <li>WALK OUT</li> <li>DROP BRICK LEDGE</li> <li>PROP. DRAINAGE ARROW</li> <li>PROP. MATCH EX. ELEV.</li> <li>PROP. TOP OF CURB ELEV.</li> <li>PROP. GUTTER ELEV.</li> <li>PROP. DITCH ELEV.</li> <li>PROP. SPOT ELEV.</li> <li>PROP. CONTOUR</li> <li>PROP. CATCH BASIN</li> <li>PROP. MANHOLE</li> <li>PROP. END SECTION</li> <li>PROP. STORM SEWER</li> <li>PROP. SANITARY SEWER</li> <li>PROP. WATER MAIN</li> <li>PROP. GATE VALVE</li> <li>PROP. HYDRANT</li> <li>PROP. SAN. STR. NUMBER</li> <li>PROP. STM. STR. NUMBER</li> <li>PROP. GATE VALVE NUMBER</li> <li>PROP. HYDRANT NUMBER</li> </ul>
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COMBINE EXISTING BASIN WITH PROPOSED BASIN  
DETENTION BASIN 1  
W/ 3 FT. OF PERMANENT WATER

DETENTION BASIN 2 W/ 4 FT. OF PERMANENT WATER  
PRO. BOULDER RETAINING WALL (2' MAX. HT.)  
PRO. POND FOUNTAIN  
CONSTRUCTION ACCESS



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4. APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCDOWELL & ASSOCIATES, DATED AUGUST 31, 2012.

**BENCHMARKS:**  
BM1 RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM  
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BM3 ARROW ON HYDRANT ON EAST SIDE OF WIXOM ROAD AT INTERSECTION OF WIXOM ROAD AND DRAKES BAY DRIVE. ELEVATION=962.12 N.A.V.D. 88 DATUM  
BM4 ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL SOUTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM  
BM5 ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

**NOTE:**  
PHASE 1 CONSTRUCTION ALSO INCLUDES:  
-OVERALL SITE LAND CLEARING AND LAND BALANCING.

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CONSTRUCTION LAYOUT

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BOUNDARY SURVEYS  
TOPOGRAPHIC SURVEYS  
PARCEL SPLITS  
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SITE CONDOMINIUM  
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CONSTRUCTION LAYOUT

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**OVERALL PRELIMINARY GRADING PLAN**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
RANGES: 8 E  
TOWNSHIP: 1 N  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN  
SECTION: 20

REVISED

2012-10-17 PRE-APP SUBMISSION

2012-11-09 PSP SUBMISSION

2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08

DRAWN BY: JP/JC

CHECKED BY: TG

FBK:

CHF:

SCALE: HOR 1"=100 FT.  
VER 1"= - FT.

9

12-362



MATCHLINE - SEE SHEET 11

MATCHLINE - SEE SHEET 11

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	EX. GUY WIRE
	EX. UTILITY LINES
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	APPROX. WATER MAIN
	FOUND CAPPED IRON BAR
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	FOUND MONUMENT
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	EX. GAS MARKER
	EX. MANHOLE
	EX. END SECTION
	EX. CATCH BASIN
	EX. GATE VALVE
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	EX. WATER SHUT-OFF
	EX. WELL
	FINISH GRADE
	WALK OUT
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**PRELIMINARY GRADING PLAN NORTH**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
 TOWNSHIP: 1 N  
 RANGE: 8 E  
 SECTION: 20  
 OAKLAND COUNTY  
 MICHIGAN

REVISED  
 2012-10-17 PRE-APP. SUBMISSION  
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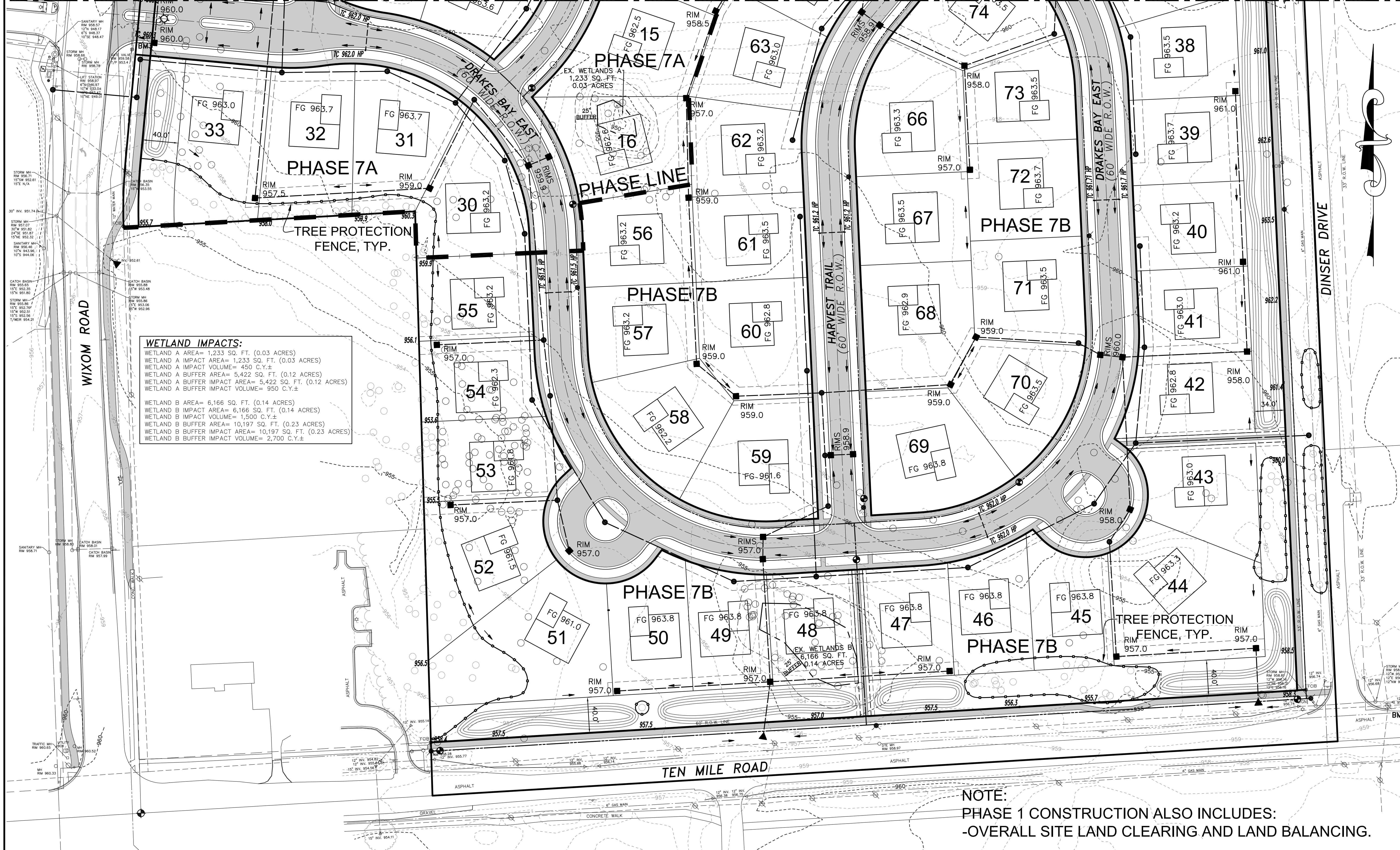
CHF:

SCALE: HOR 1"=50 FT.  
 VER 1"=10 FT.

10  
 12-362

MATCHLINE - SEE SHEET 10

MATCHLINE - SEE SHEET 10



**WETLAND IMPACTS:**

WETLAND A AREA= 1,233 SQ. FT. (0.03 ACRES)  
 WETLAND A IMPACT AREA= 1,233 SQ. FT. (0.03 ACRES)  
 WETLAND A IMPACT VOLUME= 450 C.Y.±  
 WETLAND A BUFFER AREA= 5,422 SQ. FT. (0.12 ACRES)  
 WETLAND A BUFFER IMPACT AREA= 5,422 SQ. FT. (0.12 ACRES)  
 WETLAND A BUFFER IMPACT VOLUME= 950 C.Y.±

WETLAND B AREA= 6,166 SQ. FT. (0.14 ACRES)  
 WETLAND B IMPACT AREA= 6,166 SQ. FT. (0.14 ACRES)  
 WETLAND B IMPACT VOLUME= 1,500 C.Y.±  
 WETLAND B BUFFER AREA= 10,197 SQ. FT. (0.23 ACRES)  
 WETLAND B BUFFER IMPACT AREA= 10,197 SQ. FT. (0.23 ACRES)  
 WETLAND B BUFFER IMPACT VOLUME= 2,700 C.Y.±

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○	FOUND IRON BAR	○	FOUND MONUMENT	○	EX. POST
○	EX. SIGN	○	EX. PEDESTAL	○	EX. LIGHT POLE
○	EX. TRANSFORMER	○	EX. UTILITY POLE	○	EX. GAS FLAG
○	EX. GAS MARKER	○	EX. MANHOLE	○	EX. END SECTION
○	EX. CATCH BASIN	○	EX. HYDRANT	○	EX. WATER SHUT-OFF
○	EX. WELL	○	FG	FINISH GRADE	
○	WO	WALK OUT	DBL	DROP BRICK LEDGE	
○	MATCH 1000.0	PROP. MATCH EX. ELEV.	○	PROP. TOP OF CURB ELEV.	
○	TC 1000.0	PROP. GUTTER ELEV.	○	PROP. DITCH ELEV.	
○	GU 1000.0	PROP. SPOT ELEV.	○	PROP. CONTOUR	
○	1000.0	PROP. CATCH BASIN	○	PROP. MANHOLE	
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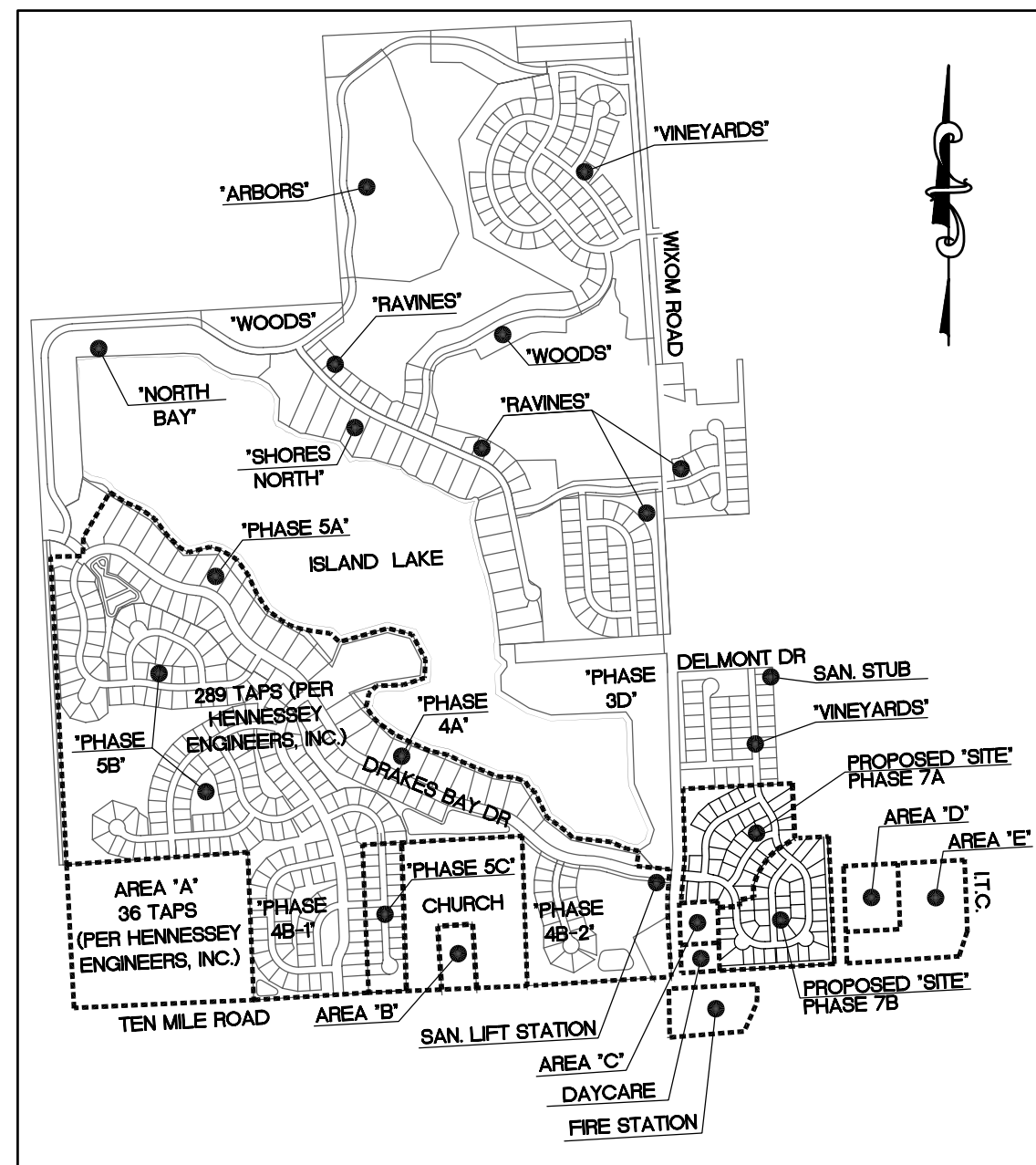
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FBK: 11  
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 SCALE: HOR 1"=50 FT.  
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 12-362



BASED ON INFORMATION PROVIDED BY THE CITY OF NOVI, ESTIMATED SANITARY SEWER INVERTS, AND GENERAL TOPOGRAPHIC INFORMATION (AS PROVIDED ON THE OAKLAND COUNTY GIS WEBSITE), THE ABOVE SANITARY SEWER DISTRICT MAP HAS BEEN COMPILED. AREAS OUTLINED ABOVE ARE PROPOSED TO FLOW TO THE SANITARY SEWER LIFT STATION AT DRAKES BAY DRIVE AND WIXOM ROAD. REMAINING AREAS (WEST OF THE I.T.C. CORRIDOR AND SOUTH OF DELMONT ROAD) ARE PROPOSED TO FLOW TO THE PROVIDED SANITARY SEWER STUB ON DELMONT ROAD.

**SANITARY SEWER DISTRICT MAP**  
SCALE 1"=1500'

**Sanitary Sewer District for the Existing Sanitary Sewer Lift Station at Drakes Bay Dr. and Wixom Rd.**

\*\* Indicates assumed values were used to calculate SFUs  
\*\* Based on the "Sanitary Sewer Capacity" plans prepared by Hennessy Engineers (dated 10-23-2000)

Estimated EXISTING flow into Lift Station @ Drakes Bay Drive and Wixom

Usage	Unit	Units	Single Family Units (SFU)	Population (3.2 People Per Unit)
Phase 4A, 4B-1, 4B-2, 5A, and 5B	1.00	per dwelling	289	925
Phase 5C	1.00	per dwelling	22	70
Oak Pointe Church *	0.008	per seat	1830	47
City of Novi Fire Department *	0.32	per employee	15	15
Blooming Day Child Care Center *	0.012	per child	50	2
<b>TOTAL POPULATION</b>				<b>1,059</b>

Estimated FLOW into Lift Station @ Drakes Bay Drive and Wixom

Usage	Unit	Units	Single Family Units (SFU)	Population (3.2 People Per Unit)
Total Population:	1,059	people		
Average Daily Flow:	100	gallons/capita/day		
Average Flow:	105,800	gallons/day	=	0.1639 c.f.s.
Peak Flow:	400,706	gallons/day	=	0.6200 c.f.s.

Estimated PROPOSED flow into Lift Station @ Drakes Bay Drive and Wixom

Usage	Unit	Units	Single Family Units (SFU)	Population (3.2 People Per Unit)
"The Meadows" (Phases 7A and 7B)	1.00	per dwelling	75	240
<b>TOTAL POPULATION</b>				<b>240</b>

Estimated FUTURE flow into Lift Station @ Drakes Bay Drive and Wixom

Usage	Unit	Units	Single Family Units (SFU)	Population (3.2 People Per Unit)
Area "A" **	1.00	per dwelling	36	115
Area "B" **	1.00	per dwelling	2	6
Area "C" **	1.00	per dwelling	2	6
Area "D" **	1.00	per dwelling	7	22
Area "E" **	1.00	per dwelling	4	13
<b>TOTAL POPULATION</b>				<b>163</b>

Estimated FUTURE flow into Lift Station @ Drakes Bay Drive and Wixom

Usage	Unit	Units	Single Family Units (SFU)	Population (3.2 People Per Unit)
Total Population:	1,462	people		
Average Daily Flow:	100	gallons/capita/day		
Average Flow:	146,200	gallons/day	=	0.2262 c.f.s.
Peak Flow:	539,125	gallons/day	=	0.8342 c.f.s.

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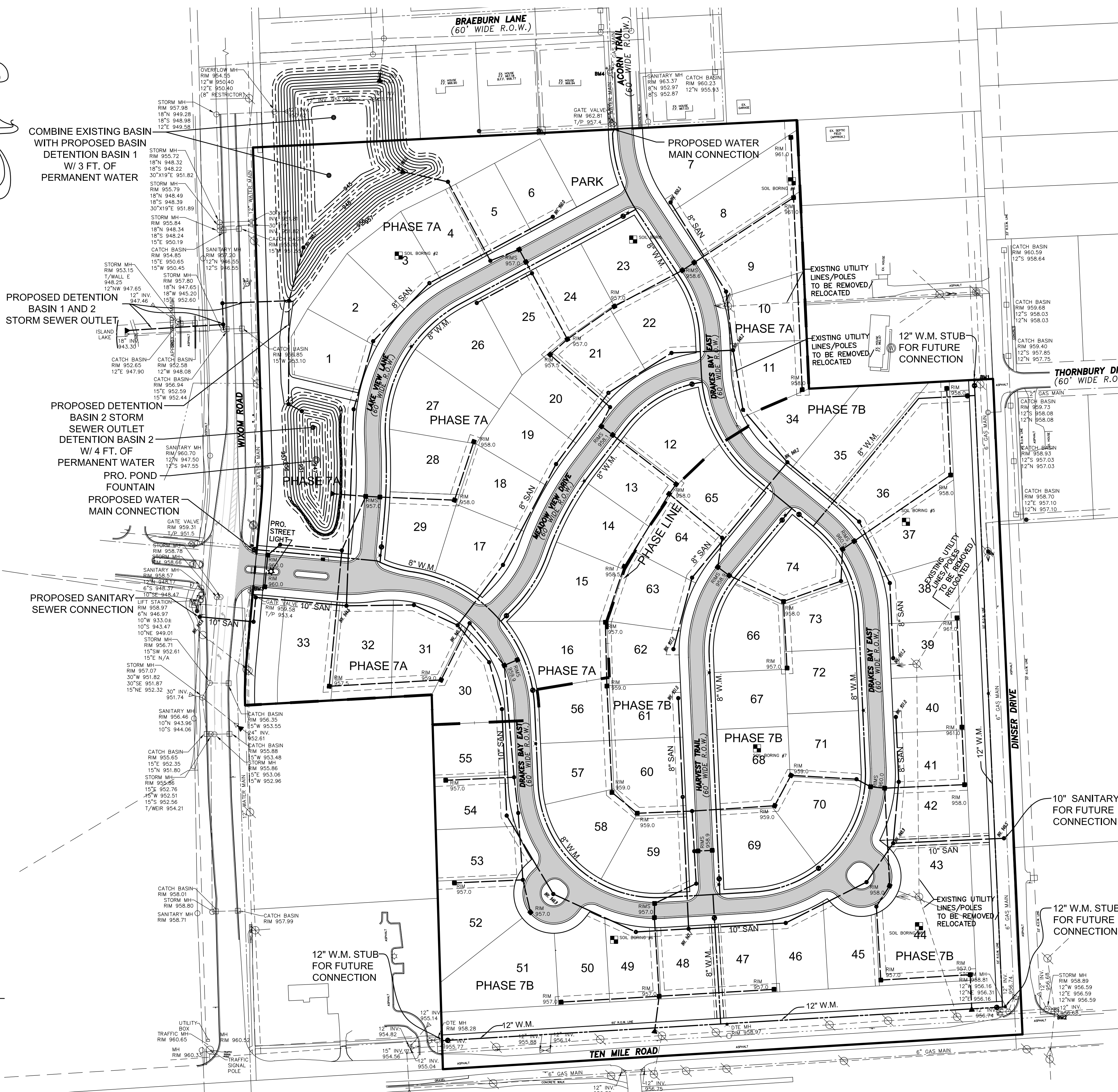
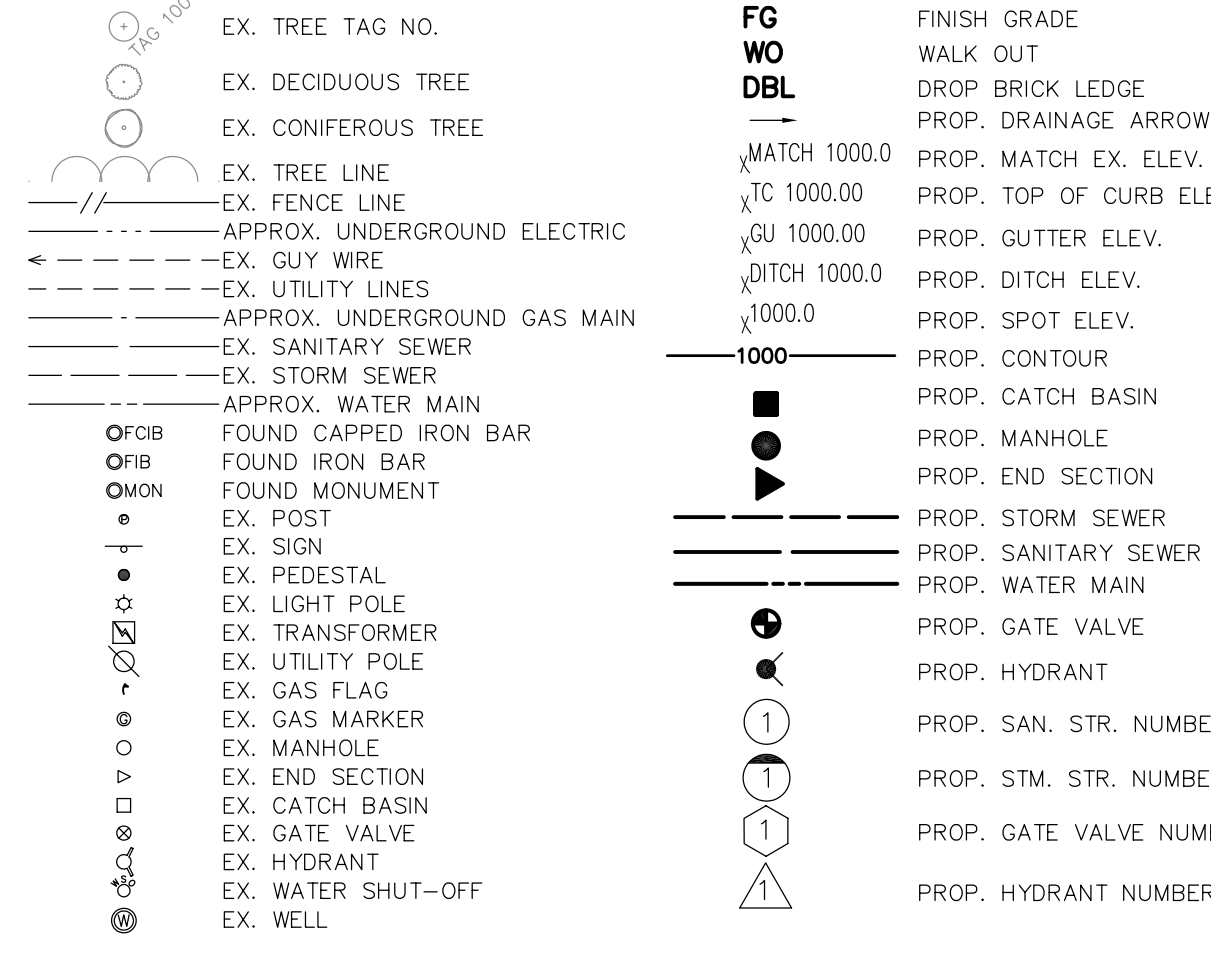
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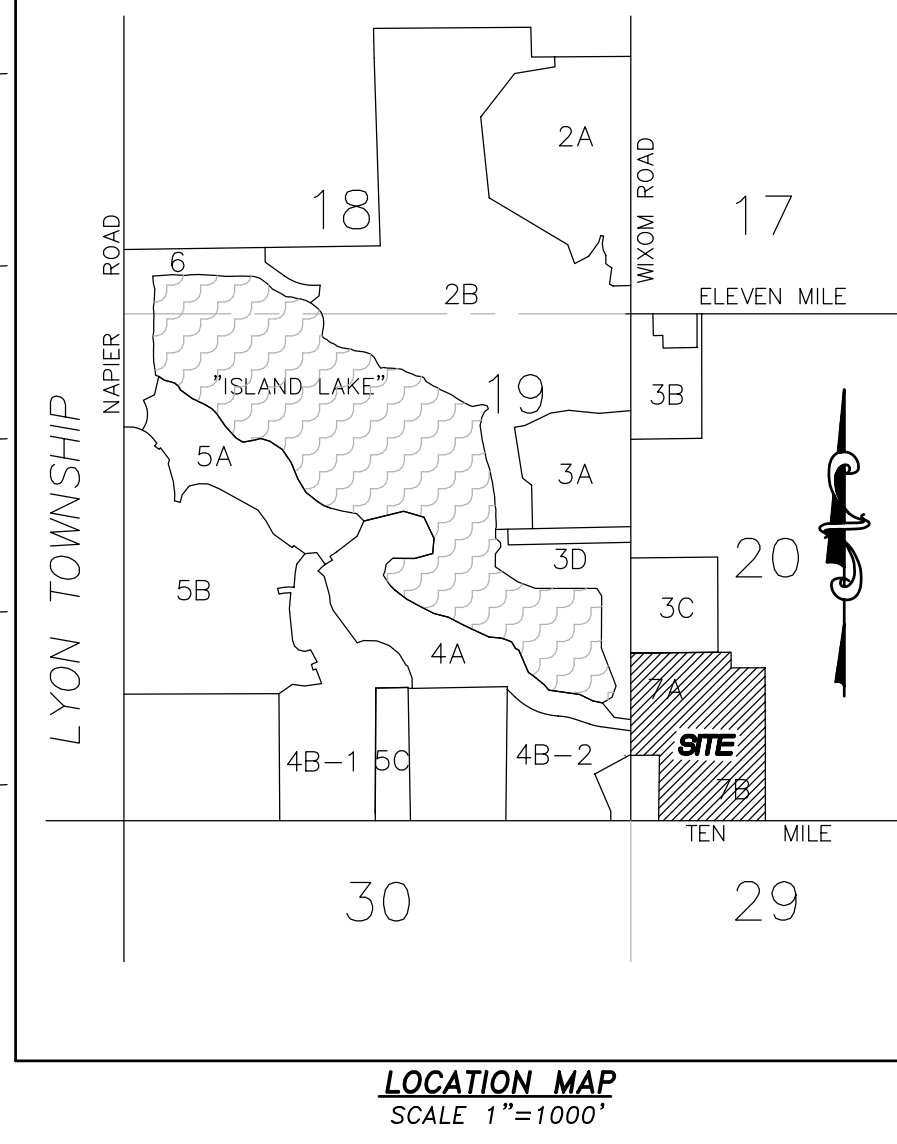
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- COMPACTED SAND BACKFILL SHALL BE PROVIDED FOR ALL UTILITIES WITHIN THE INFLUENCE OF PAVED AREAS.
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**BENCHMARKS:**

BM1 RAILROAD SPIKE IN EAST FACE OF WIXOM ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM

BM2 RAILROAD SPIKE IN WEST FACE OF UTILITY POLE AT INTERSECTION OF DINSER ROAD AND 10 MILE ROAD. ELEVATION=960.38 N.A.V.D. 88 DATUM

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BM4 ARROW ON HYDRANT ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM

BM5 ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

**ALPINE ENGINEERING, INC.**  
CIVIL ENGINEERS & LAND SURVEYORS  
46892 WEST ROAD  
SUITE 109  
NOVI, MICHIGAN 48377  
(248) 926-3701 (BUS)  
(248) 926-3765 (FAX)  
WWW.ALPINE-INC.NET

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

**TOLL BROTHERS, INC.**  
OVERALL PRELIMINARY UTILITY PLAN  
"THE MEADOWS" OF ISLAND LAKE OF NOVI  
RANGE: 8-E  
TOWNSHIP: 1-N  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN  
SECTION: 20

CLIENT: TOLL BROTHERS, INC.

REVISED

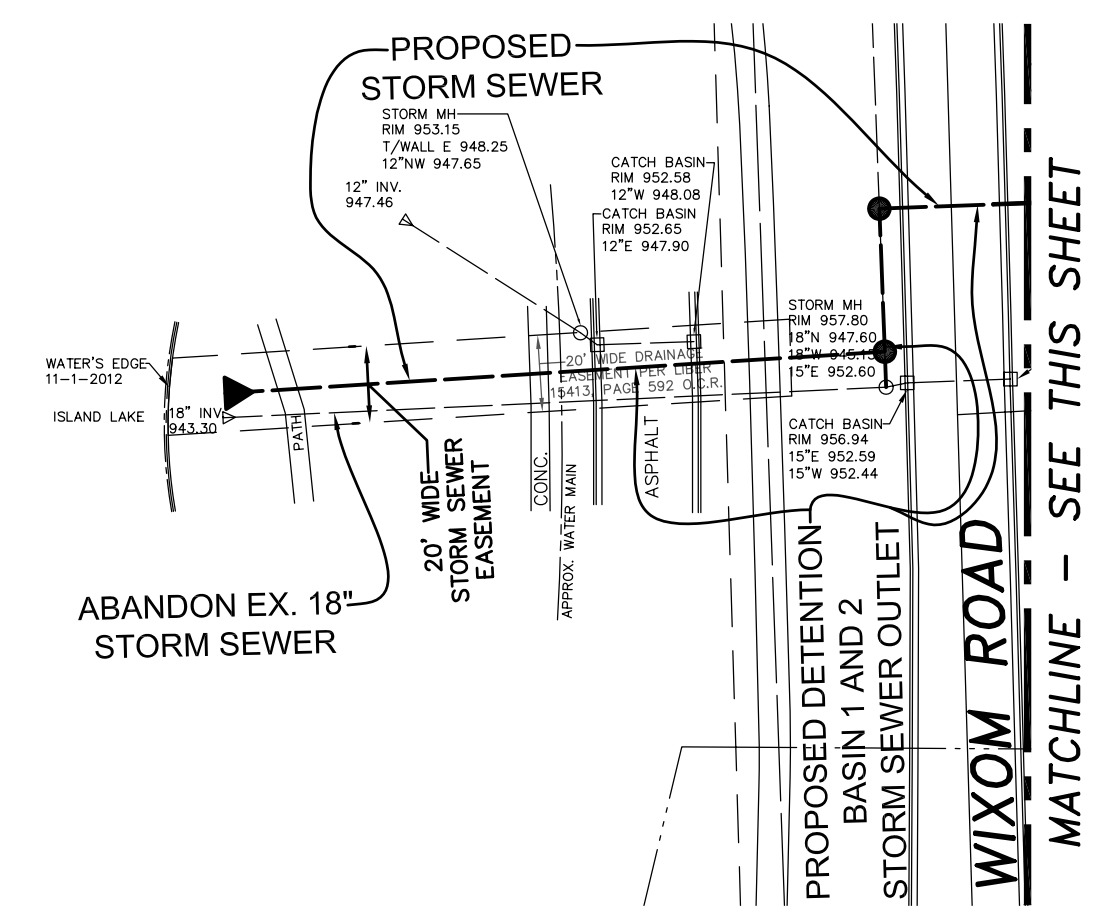
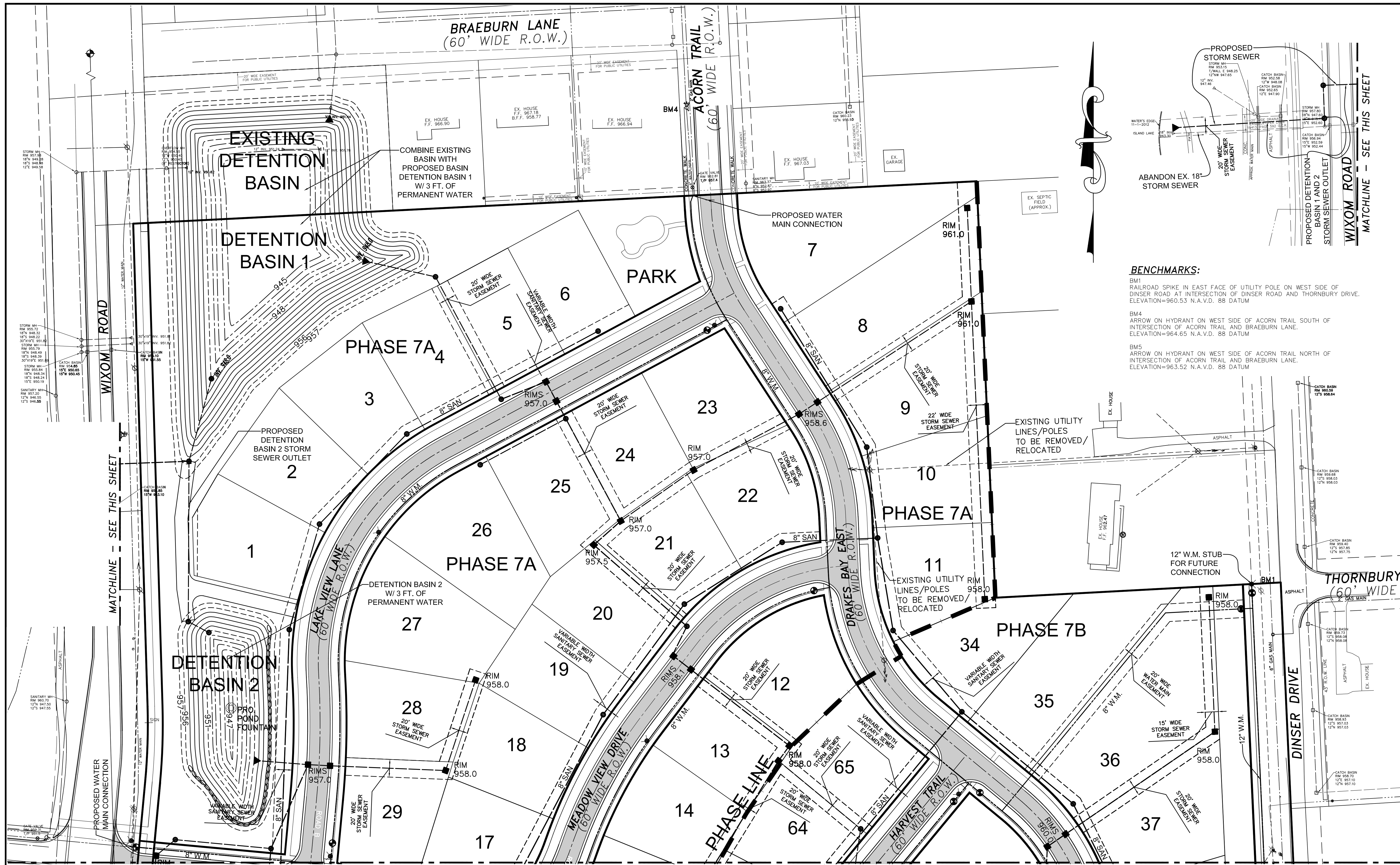
2012-10-17 PRE-APP. SUBMISSION  
2012-11-09 PSP SUBMISSION  
2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08  
DRAWN BY: JP/TG  
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FBK:  
CHF:

SCALE: HOR 1"=100 FT.  
VER 1"=1 FT.

12  
12-362



**BENCHMARKS:**  
 BM1 RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=960.53 N.A.V.D. 88 DATUM  
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 BMS ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

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 SITE ENGINEERING  
 INDUSTRIAL & MULTI-UNIT  
 LAND SURVEYING  
 CONSTRUCTION LAYOUT

SURVEYING  
 ALTA SURVEYS  
 BOUNDARY SURVEYS  
 TOPOGRAPHIC SURVEYS  
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RESIDENTIAL  
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**PRELIMINARY UTILITY PLAN NORTH**  
 "THE MEADOWS" OF ISLAND LAKE OF NOVI  
 RANGE: 8 E  
 TOWNSHIP: 1 N  
 CITY OF NOVI  
 OAKLAND COUNTY  
 MICHIGAN  
 SECTION: 20

MATCHLINE - SEE SHEET 14

MATCHLINE - SEE SHEET 14

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**LEGEND**

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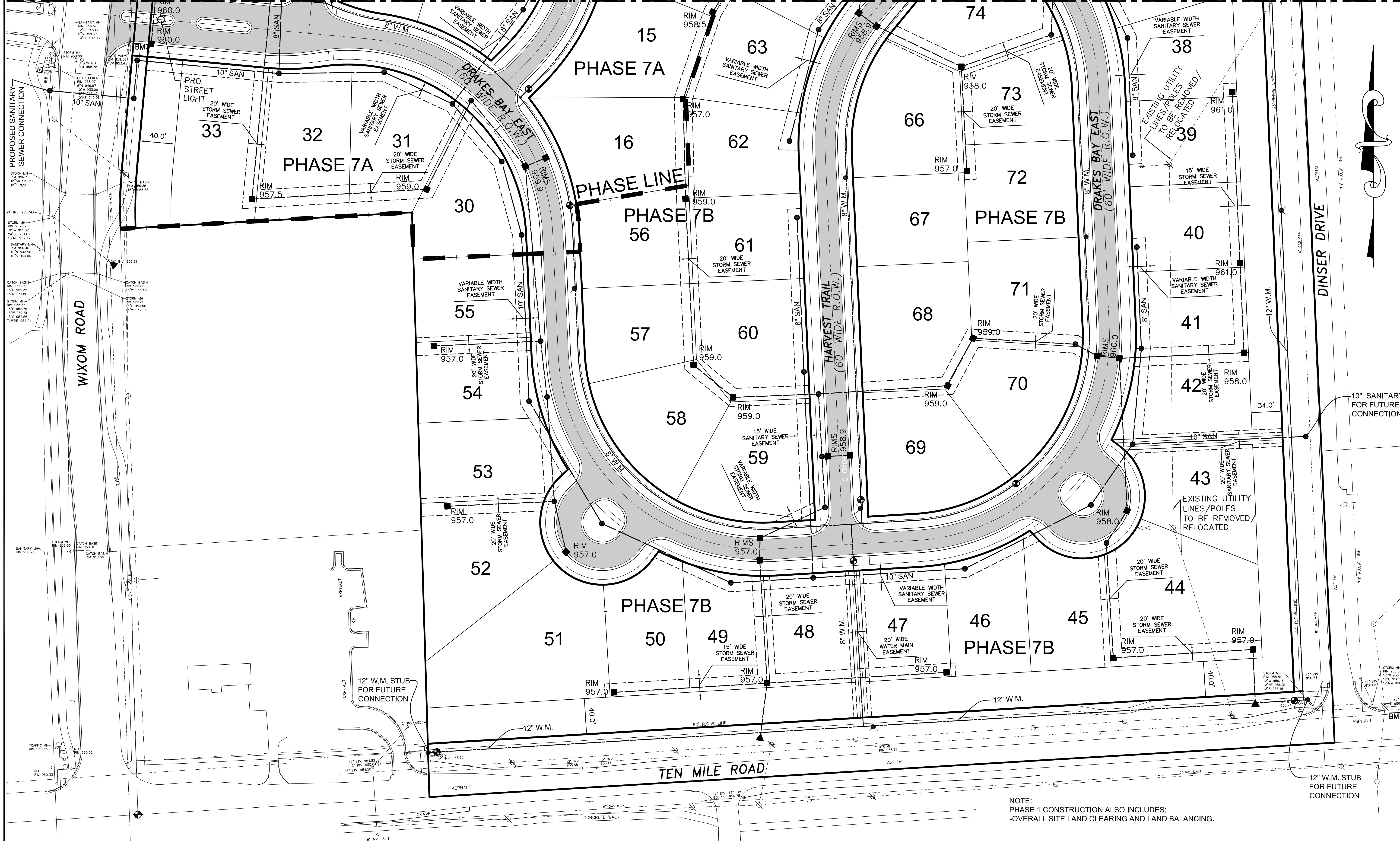
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**13**

12-362

MATCHLINE - SEE SHEET 13

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COMMERCIAL  
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**LEGEND**

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○	APPROX. WATER MAIN	●	EX. CATCH BASIN	—	
○	FOUND CAPPED IRON BAR	●	EX. GATE VALVE	—	
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○	FOUND MONUMENT	●	EX. WATER SHUT-OFF	—	
○		●	EX. WELL	—	

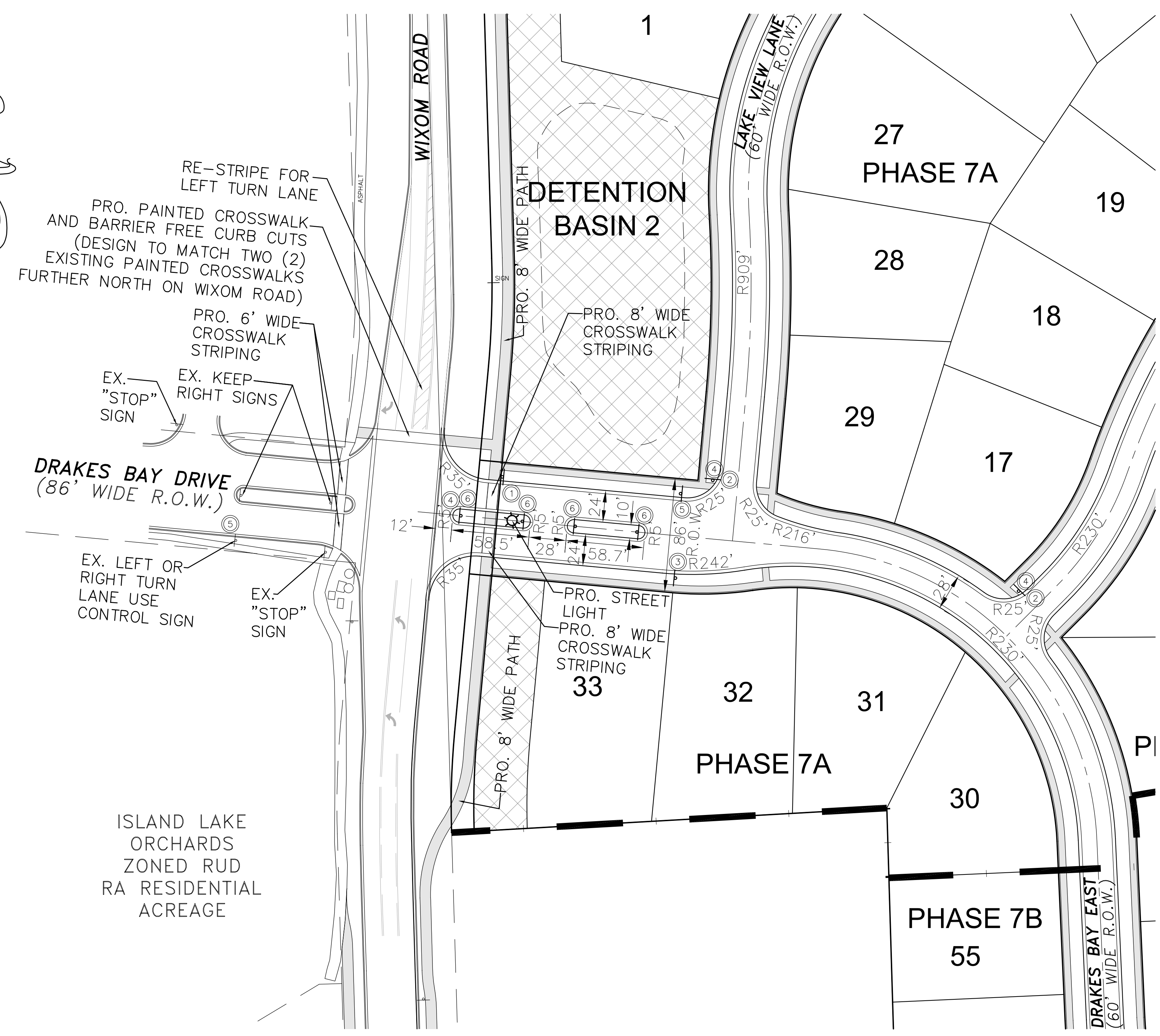
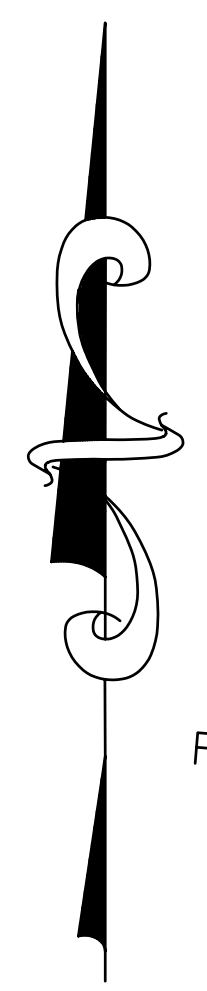
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**NOTE:**  
PHASE 1 CONSTRUCTION ALSO INCLUDES:  
-OVERALL SITE LAND CLEARING AND LAND BALANCING.



RE-STRIPE FOR LEFT TURN LANE  
 PRO. PAINTED CROSSWALK AND BARRIER FREE CURB CUTS (DESIGN TO MATCH TWO (2) EXISTING PAINTED CROSSWALKS FURTHER NORTH ON WIXOM ROAD)  
 PRO. 6' WIDE CROSSWALK STRIPING  
 EX. "STOP" SIGN  
 EX. KEEP RIGHT SIGNS

DRAKES BAY DRIVE (86' WIDE R.O.W.)  
 EX. LEFT OR RIGHT LANE USE CONTROL SIGN  
 EX. "STOP" SIGN

ISLAND LAKE ORCHARDS ZONED RUD RA RESIDENTIAL ACREAGE

DETENTION BASIN 2

27 PHASE 7A

28

18

29

17

PHASE 7A

32

31

30

PHASE 7B

55

**SIGN LEGEND**

SYMBOL	DESCRIPTION	QUANTITY PANEL	POST
①	R1-1 30" "STOP" SIGN	1	1
②	R1-2 "YIELD" SIGN	6	6
③	R2-1(25) "25" SPEED LIMIT" SIGN	1	1
④	D3-1 "STREET NAME" SIGN	7	0
⑤	R3-8 LANE USE CONTROL (LEFT OR STRAIGHT/RIGHT)	2	1
⑥	R4-7 KEEP RIGHT SIGN	4	4

NOTES:  
 - MINIMUM SIGN MOUNTING HEIGHT SHALL BE 7 FEET ABOVE GRADE.  
 - ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

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**ALPINE ENGINEERING, INC.**  
 CIVIL ENGINEERS & LAND SURVEYORS

RESIDENTIAL SUBDIVISIONS  
 SITE CONDOMINIUM MULTI-FAMILY PLOT PLANS  
 CONSTRUCTION LAYOUT

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CLIENT: TOLL BROTHERS INC.  
 PRELIMINARY WIXOM ROAD ENTRANCE PLAN  
 "THE MEADOWS" OF ISLAND LAKE OF NOVI  
 SECTION: 20  
 TOWNSHIP: 1 N  
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REVISED

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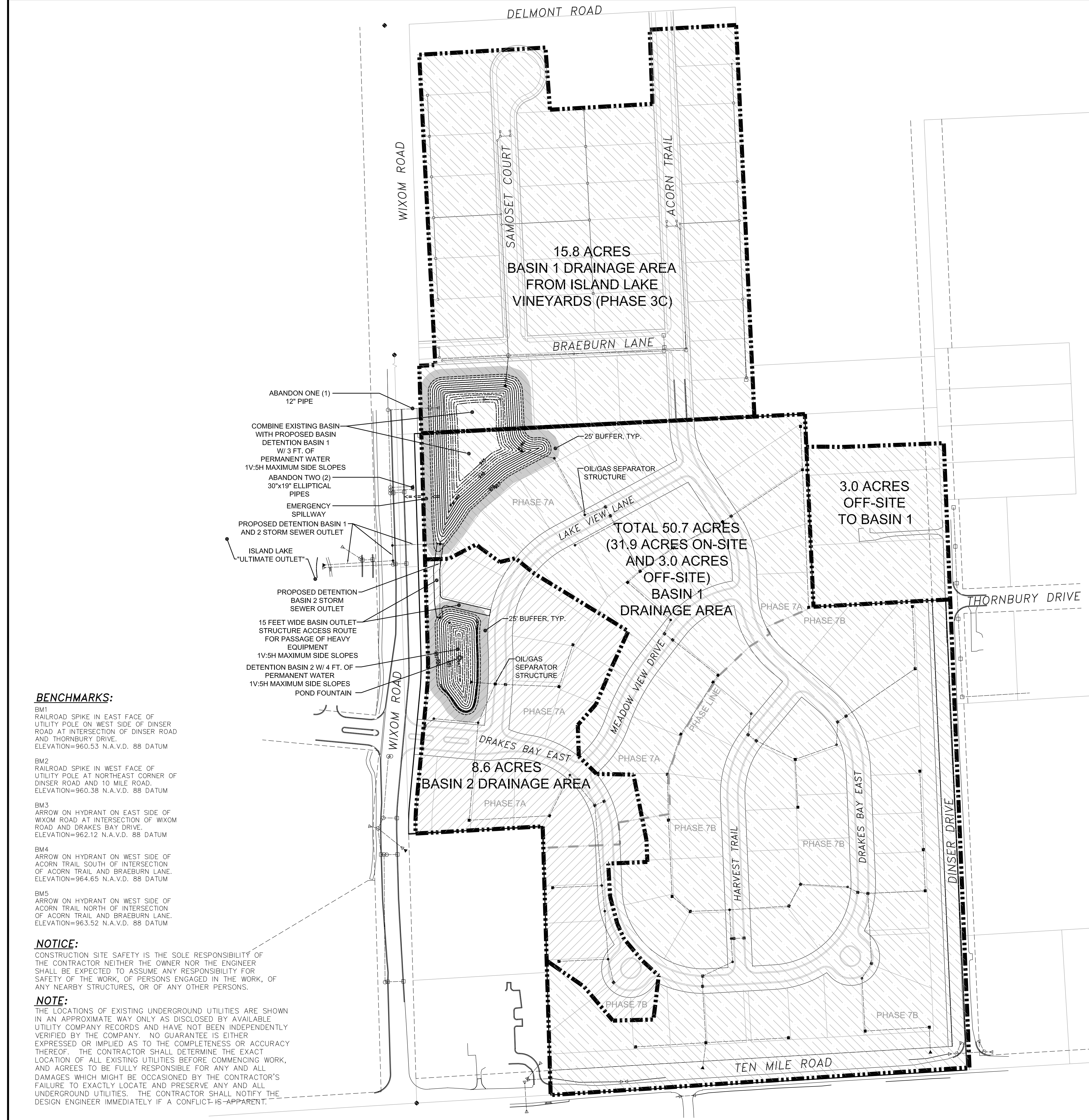
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15  
 12-362





- ABANDON ONE (1)  
12" PIPE
- COMBINE EXISTING BASIN WITH PROPOSED BASIN 1  
DETENTION BASIN 1  
W/ 3 FT. OF  
PERMANENT WATER  
1V:5H MAXIMUM SIDE SLOPES
- ABANDON TWO (2)  
30"x19" ELLIPTICAL  
PIPES
- EMERGENCY  
SPILLWAY
- PROPOSED DETENTION BASIN 1  
AND 2 STORM SEWER OUTLET
- ISLAND LAKE  
"ULTIMATE OUTLET"
- PROPOSED DETENTION BASIN 2 STORM  
SEWER OUTLET
- 15 FEET WIDE BASIN OUTLET  
STRUCTURE ACCESS ROUTE  
FOR PASSAGE OF HEAVY  
EQUIPMENT
- 1V:5H MAXIMUM SIDE SLOPES
- DETENTION BASIN 2 W/ 4 FT. OF  
PERMANENT WATER
- 1V:5H MAXIMUM SIDE SLOPES  
POND FOUNTAIN

**BENCHMARKS:**

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ROAD AND DRAKES BAY DRIVE.  
ELEVATION=962.12 N.A.V.D. 88 DATUM
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ARROW ON HYDRANT ON WEST SIDE OF  
ACORN TRAIL SOUTH OF INTERSECTION  
OF ACORN TRAIL AND BRAEBURN LANE.  
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- BM5  
ARROW ON HYDRANT ON WEST SIDE OF  
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**LEGEND**

- BASIN 1 DRAINAGE AREA
- BASIN 2 DRAINAGE AREA
- 25' BASIN BUFFER

**PROPOSED 100-YEAR DETENTION DESIGN:**

DETENTION BASIN 1  
DRAINAGE AREA= 50.7 ACRES

DETENTION BASIN 2  
DRAINAGE AREA= 8.6 ACRES

TOTAL DRAINAGE AREA= 59.3 ACRES  
Q= 59.3 x 0.1047 cfs/acre = 6.21 cfs

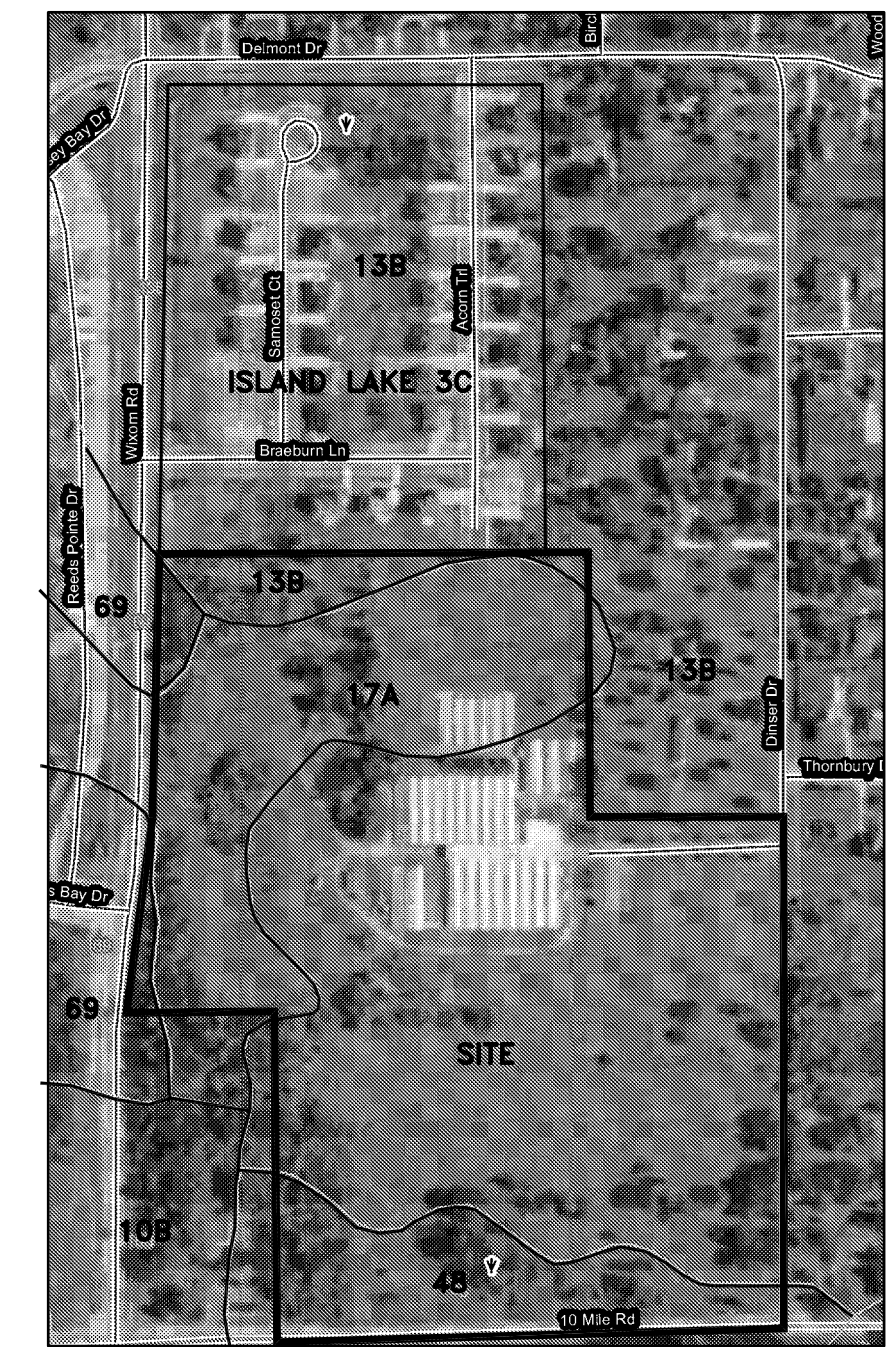
NOTE: SEE SHEET 18 FOR STORM WATER  
DETENTION CALCULATIONS

**MAINTENANCE TASKS AND SCHEDULE DURING CONSTRUCTION**

Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Castings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	Weekly
Removal of sediment accumulation	X	X	X	X	X	X	As needed & prior to turnover
Inspect for floatables and debris		X	X	X	X	X	Quarterly
Cleaning of floatables and debris		X	X	X	X	X	Quarterly & at turnover
Inspect for erosion				X		X	Weekly
Re-establish permanent vegetation on eroded slopes				X		X	As needed & prior to turnover
Replacement of stone					X	X	As needed
Wet weather inspection of structural elements, (including inspection for sediment accumulation in detention basins) with as-built plans in hand. These should be carried out by a professional engineer.	X			X	X	X	As needed & at turnover
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Street Sweeping							As needed

**PERMANENT MAINTENANCE TASKS AND SCHEDULE**

Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Castings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	Annually
Removal of sediment accumulation	X	X	X	X	X	X	Every 2 years as needed
Inspect for floatables and debris		X	X	X	X	X	Annually
Cleaning of floatables and debris		X	X	X	X	X	Annually
Inspect for erosion				X		X	Annually
Re-establish permanent vegetation on eroded slopes				X		X	As needed
Replacement of stone					X	X	As needed
Wet weather inspection of structural elements, (including inspection for sediment accumulation in detention basins) with as-built plans in hand. These should be carried out by a professional engineer.	X			X	X	X	Annually
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Keep records of all inspections and maintenance activities						X	Annually
Keep records of all costs for inspections, maintenance, and repairs						X	Annually



- 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
- 13B - OSHTEMO-BOYER LOAMY SANDS, 0 TO 6 PERCENT SLOPES
- 17A - WASEPI SANDY LOAM, 0 TO 3 PERCENT SLOPES
- 48 - GILFORD SANDY LOAM
- 69 - THOMAS MUCK

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**PRELIMINARY STORM WATER  
MANAGEMENT PLAN**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
TOWNSHIP-1 N  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN

SECTION: 20  
RANGE: 8 E

REVISED

2012-10-17 PRE-APP SUBMISSION  
2012-11-09 PSP SUBMISSION  
2012-12-21 PSP RE-SUBMISSION

DATE: **2012-10-08**

DRAWN BY: **JP/TG**

CHECKED BY: **TG**

FBK:

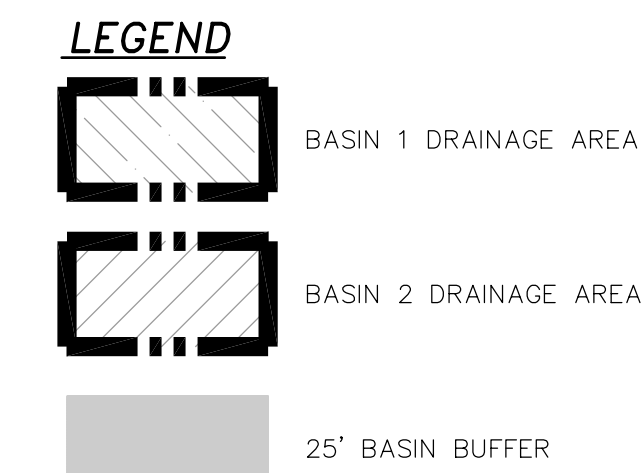
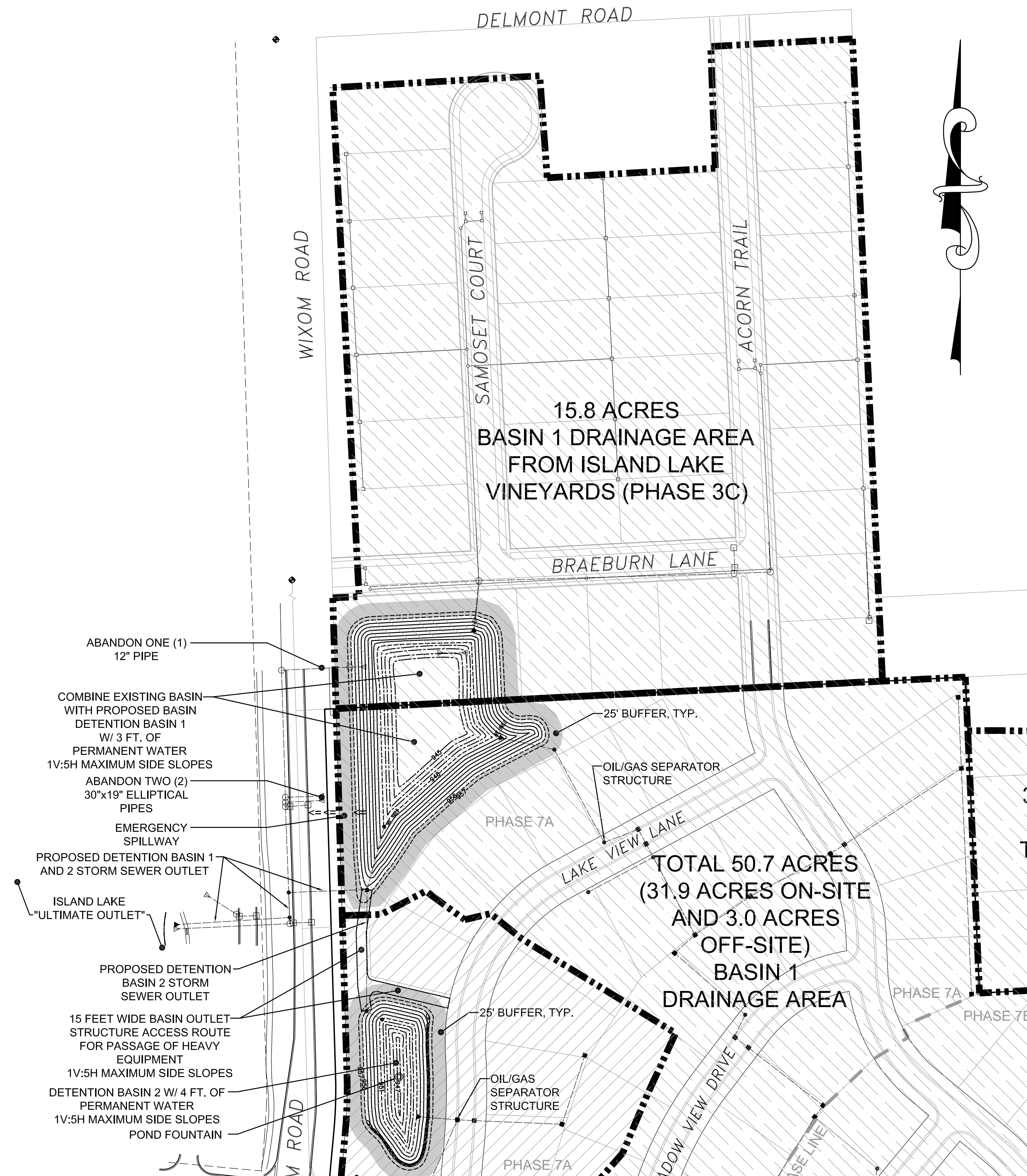
CHF:

SCALE: HOR 1"=120 FT.  
VER 1"=1 FT.

**16**

12-362

# REVISED ISLAND LAKE 3C STORM WATER MANAGEMENT PLAN



**PROPOSED 100-YEAR DETENTION DESIGN:**

DETENTION BASIN 1  
DRAINAGE AREA= 50.7 ACRES

DETENTION BASIN 2  
DRAINAGE AREA= 8.6 ACRES

TOTAL DRAINAGE AREA= 59.3 ACRES  
Q= 59.3 x 0.1047 cfs/acre = 6.21 cfs

NOTE: SEE SHEET 18 FOR STORM WATER DETENTION CALCULATIONS

**MAINTENANCE TASKS AND SCHEDULE DURING CONSTRUCTION**

Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Castings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	Weekly
Removal of sediment accumulation	X	X	X	X	X	X	As needed & prior to turnover
Inspect for floatables and debris		X	X	X	X	X	Quarterly
Cleaning of floatables and debris		X	X	X	X	X	Quarterly & at turnover
Inspect for erosion				X		X	Weekly
Re-establish permanent vegetation on eroded slopes				X		X	As needed & prior to turnover
Replacement of stone					X	X	As needed
Wet weather inspection of structural elements, (including inspection for sediment accumulation in detention basins) with as-built plans in hand. These should be carried out by a professional engineer.	X			X	X	X	As needed & at turnover
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Street Sweeping							As needed

**PERMANENT MAINTENANCE TASKS AND SCHEDULE**

Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Castings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	Annually
Removal of sediment accumulation	X	X	X	X	X	X	Every 2 years as needed
Inspect for floatables and debris		X	X	X	X	X	Annually
Cleaning of floatables and debris		X	X	X	X	X	Annually
Inspect for erosion				X		X	Annually
Re-establish permanent vegetation on eroded slopes				X		X	As needed
Replacement of stone					X	X	As needed
Wet weather inspection of structural elements, (including inspection for sediment accumulation in detention basins) with as-built plans in hand. These should be carried out by a professional engineer.	X			X	X	X	Annually
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Keep records of all inspections and maintenance activities						X	Annually
Keep records of all costs for inspections, maintenance, and repairs						X	Annually



10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES  
 13B - OSHEMBO-BOYER LOAMY SANDS, 0 TO 6 PERCENT SLOPES  
 17A - WASEPI SANDY LOAM, 0 TO 3 PERCENT SLOPES  
 48 - GILFORD SANDY LOAM  
 69 - THOMAS MUCK

**BENCHMARKS:**

BM1  
RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM

BM2  
RAILROAD SPIKE IN WEST FACE OF UTILITY POLE AT INTERSECTION OF DINSER ROAD AND 10 MILE ROAD. ELEVATION=960.38 N.A.V.D. 88 DATUM

BM3  
ARROW ON HYDRANT ON EAST SIDE OF WIXOM ROAD AT INTERSECTION OF WIXOM ROAD AND DRAKES BAY DRIVE. ELEVATION=962.12 N.A.V.D. 88 DATUM

BM4  
ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL SOUTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=964.65 N.A.V.D. 88 DATUM

BM5  
ARROW ON HYDRANT ON WEST SIDE OF ACORN TRAIL NORTH OF INTERSECTION OF ACORN TRAIL AND BRAEBURN LANE. ELEVATION=963.52 N.A.V.D. 88 DATUM

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CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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**PRELIMINARY STORM WATER MANAGEMENT PLAN**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
TOWNSHIP: 1 N RANGE: 8 E  
CITY OF NOVI  
OAKLAND COUNTY MICHIGAN  
SECTION: 20

REVISED  
2012-10-17 PRE-APP SUBMISSION  
2012-11-09 PSP SUBMISSION  
2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08

DRAWN BY: JP/TG

CHECKED BY: TG

FBK: 17

CHF: 12-362

SCALE: HOR 1"=100 FT. VER 1"=10 FT.

**DRAINAGE NARRATIVE:**

**INTRODUCTION:**  
A proposed 75 lot single family site condominium development on approximately 40 acres located along the east side of Wixom Road and along the north side of Ten Mile Road. The site currently contains the Dinsor greenhouse buildings and undeveloped land. The site is bordered on the north by the Island Lake Vineyards subdivision; on the east by Dinsor Drive, un-developed land and single-family lots; on the south by Ten Mile Road, wooded un-developed land and what appears to be a small mining operation; and on the west by Wixom Road, Island Lake South Harbor, Island Lake Orchards and Island Lake. Per the United States Department of Agriculture Web Soil Survey soils in this area consist primarily of Osherno-Boyer Loamy Sands.

**EXISTING DRAINAGE PATTERNS**

The existing topography indicates 12.7 acres of the northerly portion of the site outlets to two (2) 30"x19" elliptical storm sewers on the east side of Wixom Road. There is approximately 3 acres of off-site drainage which sheet flows onto the site from the northeast and also outlets through the two (2) 30"x19" elliptical storm sewers. The elliptical storm sewer outlets to an existing 18" diameter storm sewer on the west side of Wixom Road. The 18" diameter storm sewer flows south and then west where it discharges into Island Lake. The middle and southerly portions of the site, approximately 23.1 acres, drain to depressions on the property. There are a series of culverts, 12" diameter and 15" diameter, within the Ten Mile Road right-of-way which discharge approximately 0.4 acres of the site and right-of-way to the south side of Ten Mile Road. Approximately 4.3 acres of the southwest portion of the site drains to the west across a vacant outlet, north of the existing childcare building, to an existing 24" diameter storm sewer which ultimately outlets into Island Lake. The Island Lake Vineyards Phase 3C subdivision located north of the site routes its storm water into an existing detention basin located at the northwest portion of the site. The drainage area tributary to the existing detention basin is 15.8 acres. The existing detention basin outlets its storm water through an existing 12" diameter pipe to the existing 18" diameter storm sewer on the west side of Wixom Road. Based on existing information, the 18" diameter storm sewer on the west side of Wixom Road which outlets to Island Lake also receives drainage, approximately 6.7 acres, from the Wixom Road right-of-way.

**PROPOSED ON-SITE DETENTION**

On-site detention is to be provided per City of Novi Standards. The on-site detention consists of two basins with adequate volume to detain a 100-yr rainfall event. Basin #1 and #2 are located near the northwest corner of the site and outlet into the existing 18" diameter storm sewer on the west side of Wixom Road. To further design the on-site detention facilities, it is first necessary to determine the capacity of the downstream facilities.

The first step is to analyze the storm flows into the existing 18" diameter storm sewer on the west side of Wixom Road.

The 10-yr and 100-yr storm flows into the two (2) existing 30"x19" elliptical storm sewers have been estimated by the SCS Method as 8.41 cfs and 16.64 cfs respectively.

The existing detention basin for the Island Lake Phase 3C Vineyards restricts its discharge to 3.16 cfs per the approved plans.

The 10-yr storm event flows contributing to the 18" diameter storm sewer from the Wixom Road right-of-way drainage will be estimated using the rational method.

$Q = C_p \cdot I \cdot A$   
 $C_p = 0.65$  ((3.3x.95+3.4-.35) / 6.7))  
 $I = (175/(T+25))$   
 $T = 20$  min.  
 $A = 6.70$  acres  
 $Q = 16.94$  cfs

Based upon above calculations the 10-yr storm event flow into the existing 18" storm sewer is 29.51 cfs

The next step is to determine the capacity of the existing 18" storm sewer which outlets to Island Lake

Pipe Size= 18 inch  
 Slope= 2.07 %  
 Area= 1.77 sf  
 n= 0.013  
 Capacity= 10.90 cfs

Based upon the above calculations the existing 18" diameter storm sewer pipe is currently undersized. Calculate the required size to accommodate on-site and off-site flows:

Calculate the allowable outflow from the proposed development site:  
 $Q = 9.41$  cfs  
 $A = 43.50$  acres (40.5 acres on-site and 3 acres off-site)  
 $Q_a = 0.22$  cfs/acre  
 Above exceeds allowable discharge per acre of 0.15 cfs/acre  
 Reduce the allowable discharge from the proposed site using 0.07 cfs/acre:  
 $Q_a = 0.07$  cfs/acre  
 $Q = 3.05$  cfs (40.5 acres on-site and 3 acres off-site)x0.10 cfs/acre

Sum the Flows into the outlet storm sewer on west side of Wixom Road

Wixom Road	16.94	cfs
Phase 3C	3.16	cfs
Proposed Site	3.05	cfs
Total	23.15	cfs

Calculate the required outlet pipe size on west side of Wixom Road

Pipe Size= 27 inch  
 Slope= 0.70 %  
 Area= 3.98 sf  
 n= 0.013  
 Capacity= 25.98 cfs

**DETENTION BASIN OUTLET DISCHARGE CALCULATIONS**

THE COMBINED ALLOWABLE DISCHARGE FROM DETENTION BASIN 1 AND 2 ARE PROPOSED TO BE REDUCED TO A RATE LESS THAN 0.15 CFS/ACRE

TOTAL Q ALLOWABLE	=	6.21 cfs
BASIN 1 TRIBUTARY AREA	=	50.70 acres
BASIN 2 TRIBUTARY AREA	=	8.60 acres
TOTAL TRIBUTARY AREA	=	59.30 acres
BASIN 1 PROPOSED DISCHARGE	=	5.31 cfs
BASIN 2 PROPOSED DISCHARGE	=	0.90 cfs
TOTAL DISCHARGE	=	6.21 cfs
TOTAL DISCHARGE PER ACRE FROM BASIN 1 AND 2	=	0.1047 cfs per acre

**BASIN 1:**

**BASIN 1 ESTIMATED RUNOFF COEFFICIENT CALCULATION**

LAND USE	AREA (A) (acres)	RUNOFF COEFFICIENT (C)	
Building / Pavement	16.26	0.95	
Grass	33.77	0.35	
Basin Permanent Water	0.67	1.00	
SUB AREA			
Proposed Buildings	59	3,118	4.22
Island Lake 3C Buildings	32	3,118	2.29
Off-Site Buildings	3	2,500	0.17
Proposed Roads	-	120,615	2.77
Island Lake 3C Roads	-	72,930	1.67
Off-Site Pavement	-	46,500	1.07
Proposed Driveways	56	1,155	1.48
Island Lake 3C Driveways	32	1,155	0.85
Proposed Walks	-	52,085	1.20
Island Lake 3C Walks	-	23,445	0.54
		Total	16.26

Calculate the weighted runoff coefficient:  
 $C = \sum (A_i \times C_i) / A = ((16.26 \times 0.95) + ((33.77 \times 0.35) + ((0.67 \times 1.00))) / 59.70 = 0.55$

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**BASIN 1 OAKLAND COUNTY/CITY OF NOVI STORM WATER DETENTION BASIN DESIGN**

DESIGN VARIABLES: Tributary Area (A): = 50.70 acres  
 Run-Off Coefficient (C): = 0.55

**100-YEAR STORAGE VOLUME REQUIRED**

1. ALLOWABLE DISCHARGE (Q): (SEE OUTLET DISCHARGE CALCULATIONS) = 5.31 cfs

2. ALLOWABLE DISCHARGE PER ACRE IMPERVIOUS (Qo):  $Q_o = Q_o / (A \cdot C)$  = 0.19 cfs/acre impervious

3. MAXIMUM STORAGE TIME (T):  $T_{100} = -25 + \text{SQRT}(10,312.5 / Q)$  = 207.71 minutes

4. MAXIMUM STORAGE VOLUME PER ACRE IMPERVIOUS (V):  $V_{s,100} = (16,500 \cdot T / (T + 25)) - (40 \cdot Q \cdot T)$  = 13,145 cf/acre impervious

5. STORAGE VOLUME REQUIRED (V):  $V_{s,100} = V_{s,100} \cdot A \cdot C$  = 366,556 cf

TOTAL STORAGE VOLUME REQUIRED TOTAL =  $V_{s,100}$  = 366,556 cf

FIRST FLUSH VOLUME (V<sub>f</sub>)  $V_{f,18} = 1,850 \cdot A \cdot C$  = 51,587 cf

BANKFULL FLOOD VOLUME (V<sub>b</sub>)  $V_{b,18} = 5,160 \cdot A \cdot C$  = 143,887 cf

**BASIN 1 VOLUME PROVIDED**

**PERMANENT POOL - FOREBAY VOLUME**

ELEVATION	AREA (S.F.)	AVG. AREA (S.F.)	HEIGHT (FT.)	CUMULATIVE VOLUME (C.F.)
948.00	29,335	25,445	1.00	61,310
947.00	21,555	19,700	1.00	35,865
946.00	17,845	16,165	1.00	16,165
945.00	14,485			
V <sub>18</sub>	51,587			

**100-YEAR DETENTION BASIN**

ELEVATION	AREA (S.F.)	AVG. AREA (S.F.)	HEIGHT (FT.)	CUMULATIVE VOLUME (C.F.)
957.00	76,295	73,185	1.00	459,675
956.00	70,075	67,108	1.00	386,490
955.00	64,140	61,290	1.00	319,383
954.00	58,440	55,675	1.00	258,093
953.00	52,910	50,235	1.00	202,418
952.00	47,560	45,040	1.00	152,183
951.00	42,520	40,160	1.00	107,143
950.00	37,800	35,608	1.00	66,983
949.00	33,415	31,375	1.00	31,375
948.00	29,335			

STORAGE ELEVATIONS  
 $V_{18} = 51,587$  cf provided at  $Z_o = 948.0$   
 $V_{18} = 143,887$  cf provided at  $Z_o = 949.6$   
 $V_{100} = 366,556$  cf provided at  $Z_{100} = 955.7$

**OUTLET SIZING FOR 100 YEAR FLOOD**

PER THE DETENTION BASIN VOLUME CALCULATIONS, THE MAXIMUM ALLOWABLE RELEASE RATE AT THE DESIGN WATER LEVEL OF Z<sub>100</sub> IS: = 5.31 cfs

**IN ORDER TO DETERMINE THE NUMBER OF OPENINGS NEEDED TO PASS THE MAXIMUM ALLOWABLE OUTFLOW, FIRST DETERMINE THE PEAK FLOW PASSING THROUGH THE FIRST FLUSH AND BANKFULL ORIFI AT THE DESIGN WATER LEVEL:**

$Q_{max} = 0.62 \cdot (\# \text{ of orifi for fl} \cdot A) \cdot \text{SQRT}(2 \cdot 32.2 \cdot (Z_o - Z_o)) + 0.62 \cdot (\# \text{ of orifi for bf} \cdot A) \cdot \text{SQRT}(2 \cdot 32.2 \cdot (Z_o - Z_o))$  = 4.09 cfs

IN ORDER TO USE THE FULL ALLOWABLE PEAK RELEASE RATE, PLACE ADDITIONAL HOLES AT ELEVATION Z<sub>1</sub> SIZED TO CONVEY THE FOLLOWING RATE AT THE DESIGN WATER LEVEL:  
 $Q = 5.31$  - 4.09 = 1.22 cfs

**DETERMINE THE ADDITIONAL ORIFICE AREA NEEDED BASED ON THE ORIFICE EQUATION:**

$A = Q / (0.62 \cdot \text{SQRT}(2 \cdot 32.2 \cdot (Z_o - Z_o)))$  = 0.124 ft<sup>2</sup>

DETERMINE # OF ORIFI REQUIRED BASED ON AN ORIFICE DIAMETER OF: = 1.5 inch

REQUIRED # OF ORIFI: = 10

CALCULATE ACTUAL AVERAGE RELEASE RATE:  
 $Q_{max} = Q_{max,fl} \cdot C + 0.62 \cdot (\# \text{ of orifi for } 100 \text{ yr} \cdot A)$   
 $\text{SQRT}(2 \cdot 32.2 \cdot (Z_{100} - Z_o))$  = 5.29 cfs

SIZE STANDPIPE OUTLET RESTRICTOR PIPE TO ACCOMMODATE THE MAX. ALLOWABLE RELEASE RATE.  
 ASSUME RISER OUTLET PIPE DIAMETER = 12 inch  
 $Z_o = 948.0$  ft  
 $h_{max} = (Z_{100} - Z_o - 1/2 \text{ OUTLET DIAM.})$  = 7.20 ft  
 $Q_{capacity} = 0.62 \cdot A \cdot \text{SQRT}(2 \cdot g \cdot h_{max})$  = 10.49 cfs

**OVERFLOW MANHOLE**

SIZE OVERFLOW MANHOLE STRUCTURE IN THE EVENT THE WATER LEVEL REACHES THE FREEBOARD ELEVATION BEYOND THE 100 YEAR STORM ELEVATION

ASSUME A OVERFLOW MANHOLE STRUCTURE  
 DIAMETER: = 7 ft  
 IF STRUCTURE IS NEAR BANK OF THE BASIN, APPROXIMATELY 50% OF ITS PERIMTER WILL BE USED % OF MH THAT CAN BE USED AS WEIR = 50 %  
 CALCULATE LENGTH OF OVERFLOW MANHOLE STRUCTURE: = 11.00 ft  
 LENGTH =  $2 \cdot P \cdot R \cdot 50\%$   
 ACREAGE TRIBUTARY TO OVERFLOW = 50.70 acres  
 RUNOFF COEFFICIENT = 0.55  
 LONGEST TIME (T<sub>1</sub>) OF FLOW TO BASIN (FROM STORM CALCS) = 25.00 min  
 SUM OF ALL FLOW INTO BASIN = 97.60 cfs  
 VOLUME OF BASIN (V PROVIDED FROM DETENTION CALCS) = 366,556 cf  
 TIME (T<sub>2</sub>) TO FILL BASIN = V PROVIDED / FLOW INTO BASIN = 62.60 min  
 $I = 175 / ((T_1 + T_2) + 25)$  = 1.55  
 $Q_{exp} = CIA$  = 43.34 cfs  
 $Q_{weir} = C \cdot L \cdot H^{3/2}$  = 3.33  
 C (SOURCE OCWRC)  
 CALCULATE HOW HIGH (H) THE WATER WILL RISE ABOVE THE OVERFLOW STRUCTURE TO PASS THE EXPECTED FLOW  
 $H = (Q / (C \cdot L))^{2/3}$  = 1.12 ft  
 ELEVATION OF WATER DURING OVERFLOW CONDITIONS = 955.8 ft  
 FREEBOARD ELEVATION = 957.0 ft

**SIZE OVERFLOW OUTLET PIPE**

SIZE OF PIPE: = 27 inch  
 AREA (A): = 3.98 sf  
 INVERT OF PIPE: = 948.00 ft  
 SPRINGLINE: = 949.13 ft  
 Z100: = 955.70 ft  
 HEAD (H): = 6.58 ft  
 CAPACITY, Q =  $0.62 \cdot A \cdot \text{SQRT}(2 \cdot 32.2 \cdot H)$  = 50.73 cfs

**BASIN 2:**

**BASIN 2 ESTIMATED RUNOFF COEFFICIENT CALCULATION**

LAND USE	AREA (A) (acres)	RUNOFF COEFFICIENT (C)	
Building / Pavement	2.77	0.95	
Grass	5.62	0.35	
Basin Permanent Water	0.21	1.00	
SUB AREA			
Proposed Buildings	15	3,118	1.07
Proposed Roads	-	40,485	0.93
Proposed Driveways	18	1,155	0.48
Proposed Walks	-	12,750	0.29
	Total	2.77	

Calculate the weighted runoff coefficient:  
 $C = \sum (A_i \times C_i) / A = ((2.77 \times 0.95) + ((5.62 \times 0.35) + ((0.21 \times 1.00))) / 8.60 = 0.56$

**BASIN 2 OAKLAND COUNTY/CITY OF NOVI STORM WATER DETENTION BASIN DESIGN**

DESIGN VARIABLES: Tributary Area (A): = 8.60 acres  
 Run-Off Coefficient (C): = 0.56

**100-YEAR STORAGE VOLUME REQUIRED**

1. ALLOWABLE DISCHARGE (Q): (SEE OUTLET DISCHARGE CALCULATIONS) = 0.90 cfs

2. ALLOWABLE DISCHARGE PER ACRE IMPERVIOUS (Qo):  $Q_o = Q_o / (A \cdot C)$  = 0.19 cfs/acre impervious

3. MAXIMUM STORAGE TIME (T):  $T_{100} = -25 + \text{SQRT}(10,312.5 / Q)$  = 209.91 minutes

4. MAXIMUM STORAGE VOLUME PER ACRE IMPERVIOUS (V):  $V_{s,100} = (16,500 \cdot T / (T + 25)) - (40 \cdot Q \cdot T)$  = 13,175 cf/acre impervious

5. STORAGE VOLUME REQUIRED (V):  $V_{s,100} = V_{s,100} \cdot A \cdot C$  = 63,450 cf

TOTAL STORAGE VOLUME REQUIRED TOTAL =  $V_{s,100}$  = 63,450 cf

FIRST FLUSH VOLUME (V<sub>f</sub>)  $V_{f,18} = 1,850 \cdot A \cdot C$  = 8,910 cf

BANKFULL FLOOD VOLUME (V<sub>b</sub>)  $V_{b,18} = 5,160 \cdot A \cdot C$  = 24,851 cf

DETERMINE # OF ORIFI REQUIRED BASED ON AN ORIFICE DIAMETER OF: = 2 inch

REQUIRED # OF ORIFI: = 9

CALCULATE ACTUAL AVERAGE RELEASE RATE THROUGH THE ORIFI:  
 $Q_{max,fl} = 0.62 \cdot (\# \text{ of orifi} \cdot A) \cdot \text{SQRT}(2 \cdot 32.2 \cdot h_{max})$  = 1.61 cfs

CALCULATE THE ACTUAL HOLDING TIME FOR THE BANKFULL VOLUME EXCLUDING THE FIRST FLUSH VOLUME:  
 $T_{bf} = (V_{bf} - V_{f,18}) / Q_{max,fl}$  = 16.0 hours

CALCULATE THE ACTUAL HOLDING TIME FOR THE BANKFULL VOLUME INCLUDING THE FOREBAY VOLUME:  
 $T = T_{bf} + T_{fl}$  = 40.1 hours

**BASIN 2 VOLUME PROVIDED**

**PERMANENT POOL - FOREBAY VOLUME**

ELEVATION	AREA (S.F.)	AVG. AREA (S.F.)	HEIGHT (FT.)	CUMULATIVE VOLUME (C.F.)
951.00	9,170	8,035	1.00	17,023
950.00	6,900	5,178	1.00	8,988
949.00	3,455	2,653	1.00	3,810
948.00	1,850	1,158	1.00	1,158
947.00	465			
V <sub>18</sub>	8,910			

**100-YEAR DETENTION BASIN**

ELEVATION	AREA (S.F.)	AVG. AREA (S.F.)	HEIGHT (FT.)	CUMULATIVE VOLUME (C.F.)
957.00	24,150	22,558	1.00	99,380
956.00	20,965	19,968	1.00	76,823
955.00	18,970	17,975	1.00	56,855
954.00	16,980	15,993	1.00	38,880
953.00	14,205	12,903	1.00	23,288
952.00	11,600	10,385	1.00	10,385
951.00	9,170			

**STORAGE ELEVATIONS**

$V_{18} = 8,910$  cf provided at  $Z_o = 951.0$   
 $V_{18} = 24,851$  cf provided at  $Z_o = 955.1$   
 $V_{100} = 63,450$  cf provided at  $Z_{100} = 955.3$

**BASIN 2 ORIFICE OUTLET SIZING**

OUTLET SIZING FOR FIRST FLUSH  
 RELEASE FIRST FLUSH VOLUME FROM DETENTION BASIN OVER A PERIOD OF AT LEAST 24 HOURS

CALCULATE AVERAGE RELEASE RATE WHICH WILL SATISFY THIS REQUIREMENT:  
 $Q_{max} = V_{fl} / 86,400 \text{ sec}$  = 0.10 cfs

CALCULATE AVERAGE HEAD:  
 $h_{max} = 0.667 \cdot (Z_o - Z_o)$  = 0.60 ft

DETERMINE THE ORIFICE AREA NEEDED BASED ON THE ORIFICE EQUATION:  
 $A = (Q_{max,fl} / (0.62 \cdot \text{SQRT}(2 \cdot 32.2 \cdot h_{max})))$  = 0.027 ft<sup>2</sup>  
 Diameter = 2.22 in

DETERMINE # OF ORIFI REQUIRED BASED ON AN ORIFICE DIAMETER OF: = 1.5 inch

REQUIRED # OF ORIFI: = 2

CALCULATE ACTUAL AVERAGE RELEASE RATE THROUGH THE ORIFI:  
 $Q_{max,fl} = 0.62 \cdot (\# \text{ of orifi} \cdot A) \cdot \text{SQRT}(2 \cdot 32.2 \cdot h_{max})$  = 0.10 cfs

CALCULATE ACTUAL HOLDING TIME:  
 $T = V_{fl} / Q_{max,fl}$  = 23.8 hours

**OUTLET SIZING FOR BANKFULL FLOOD**

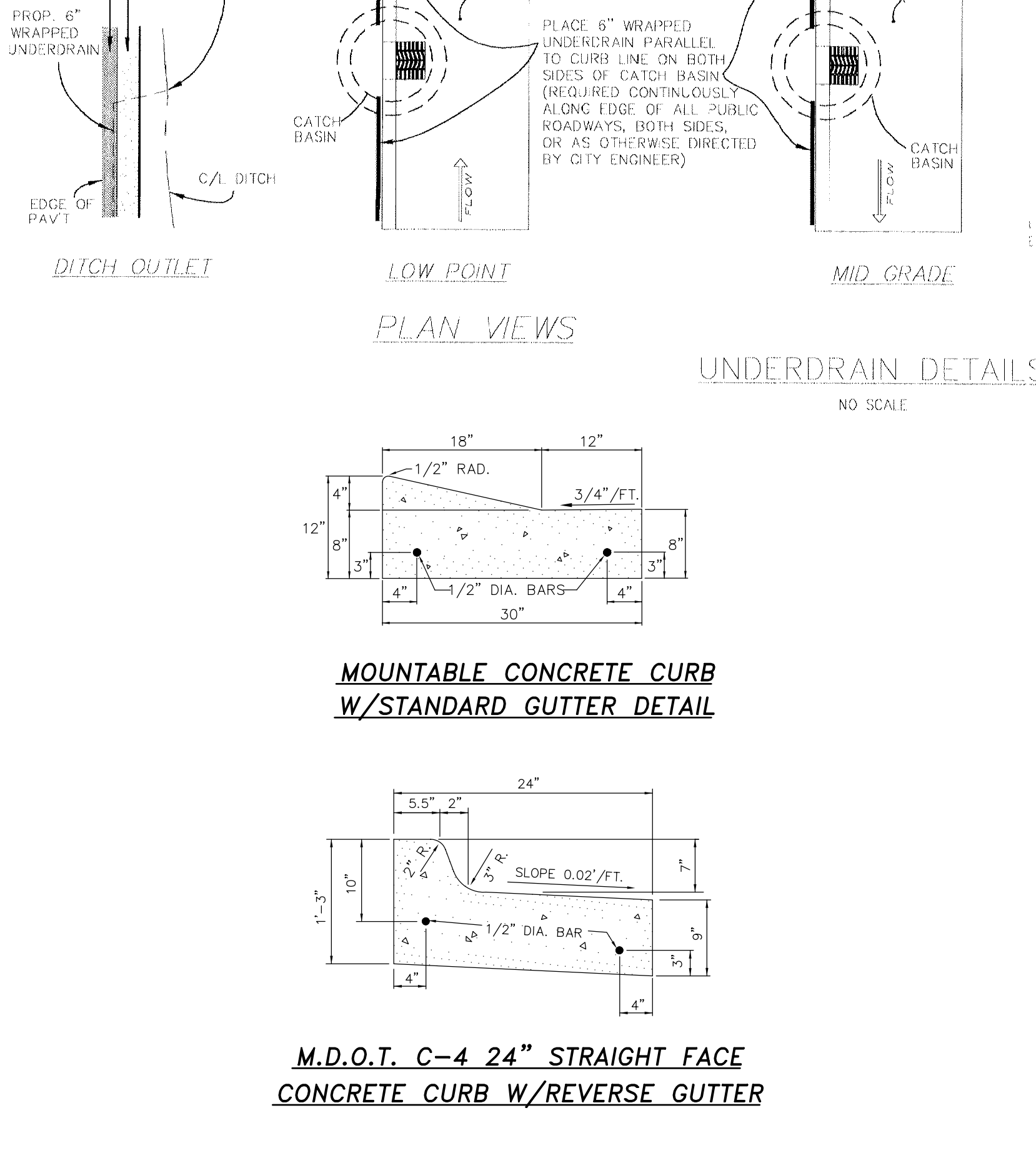
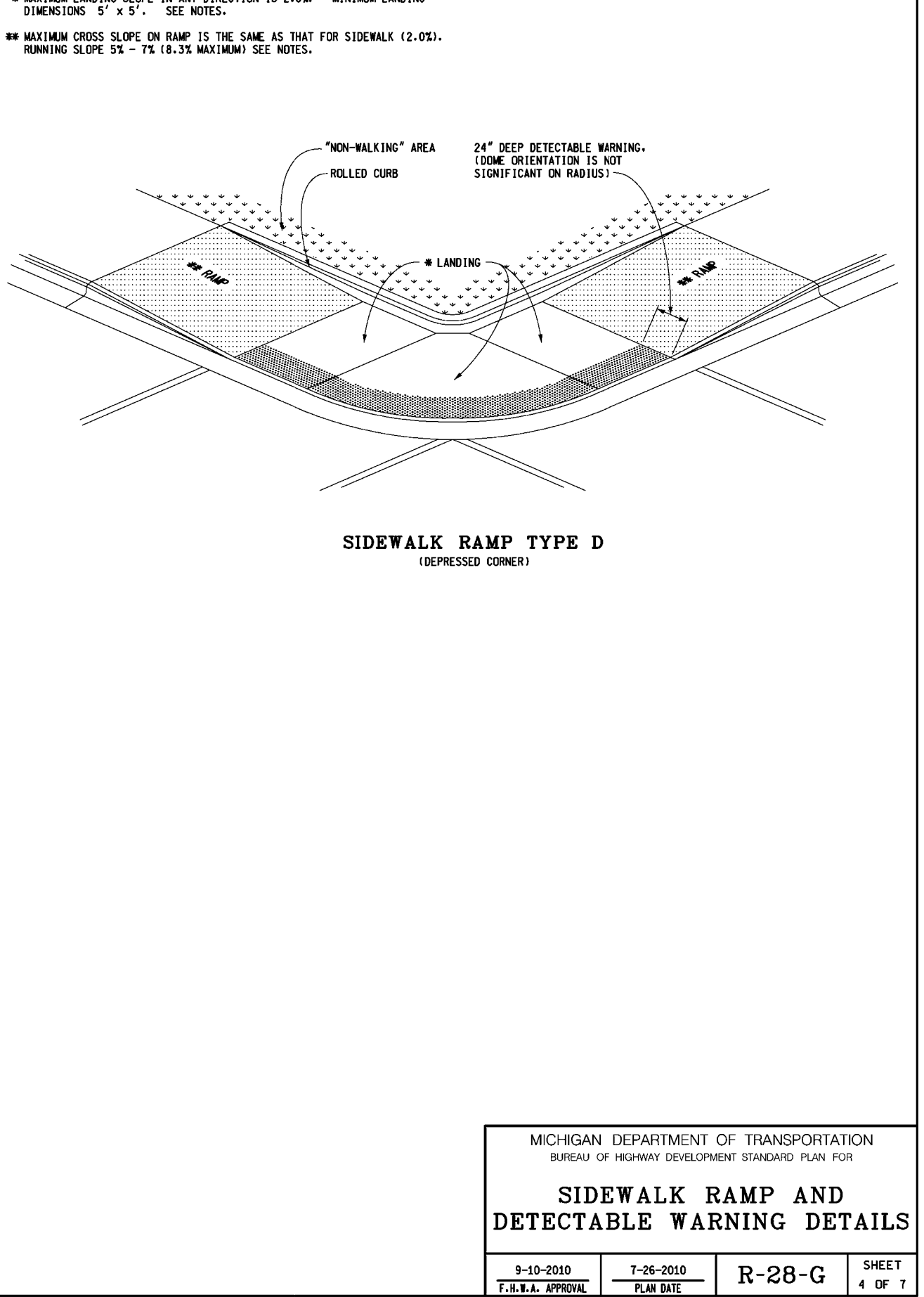
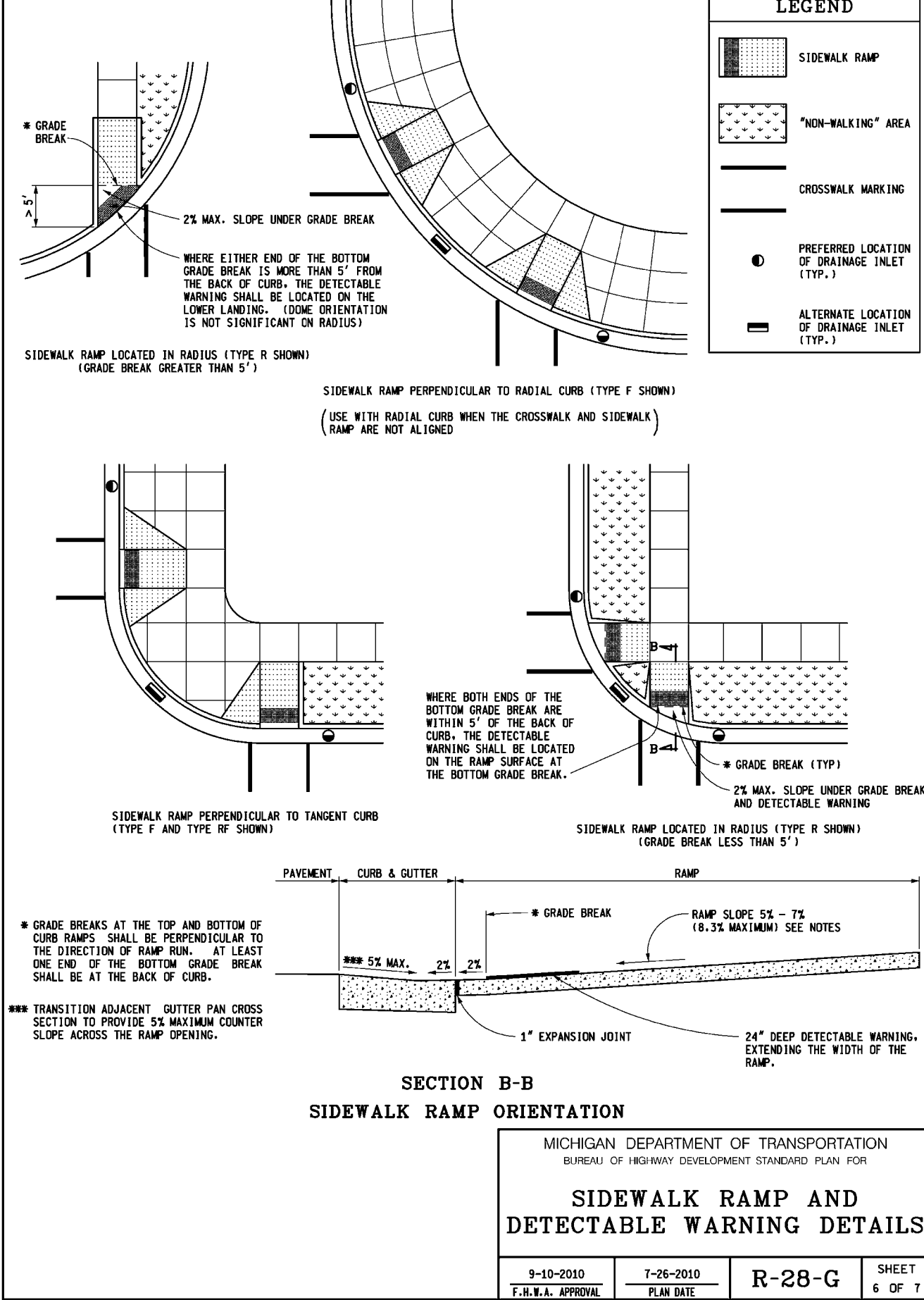
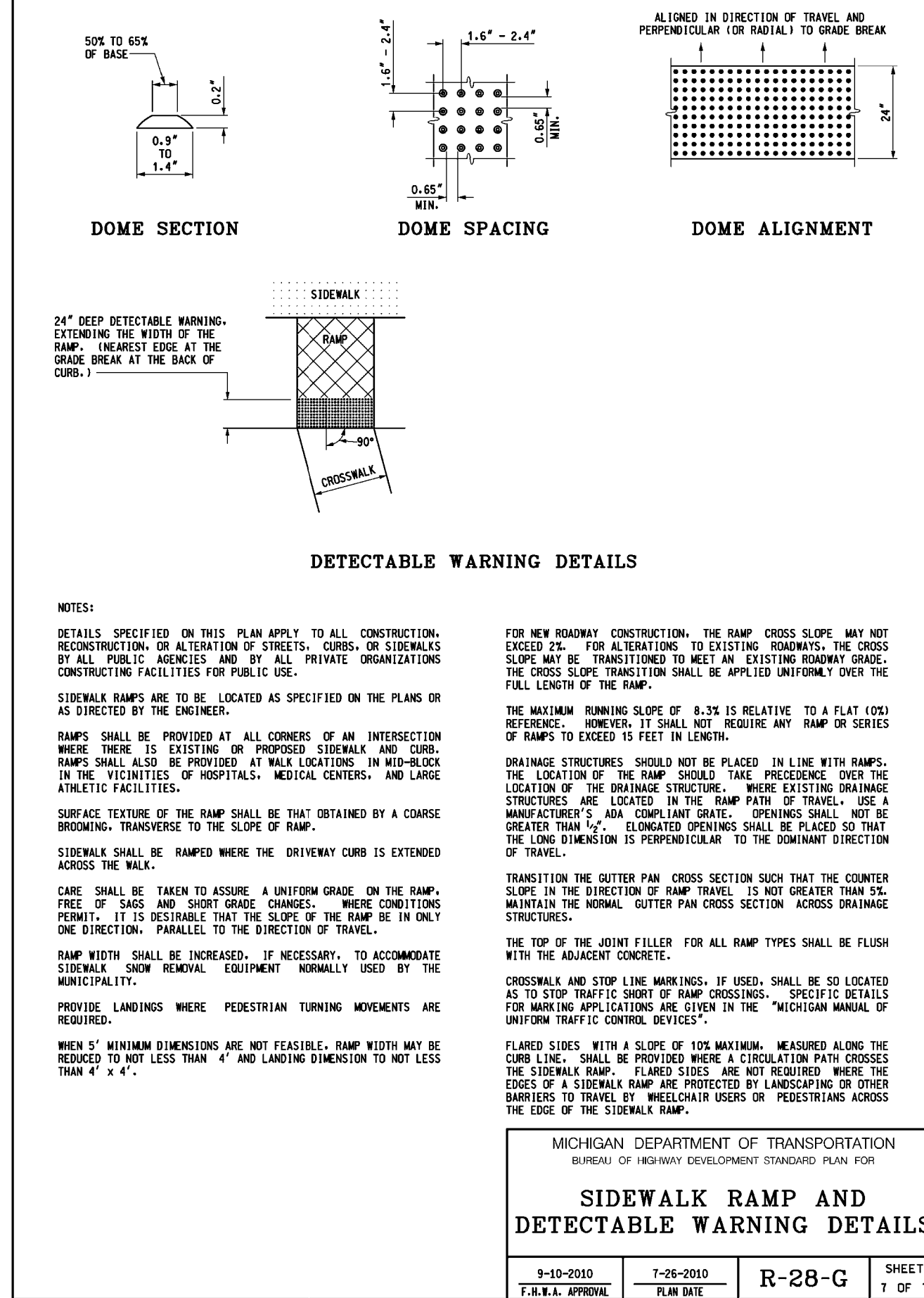
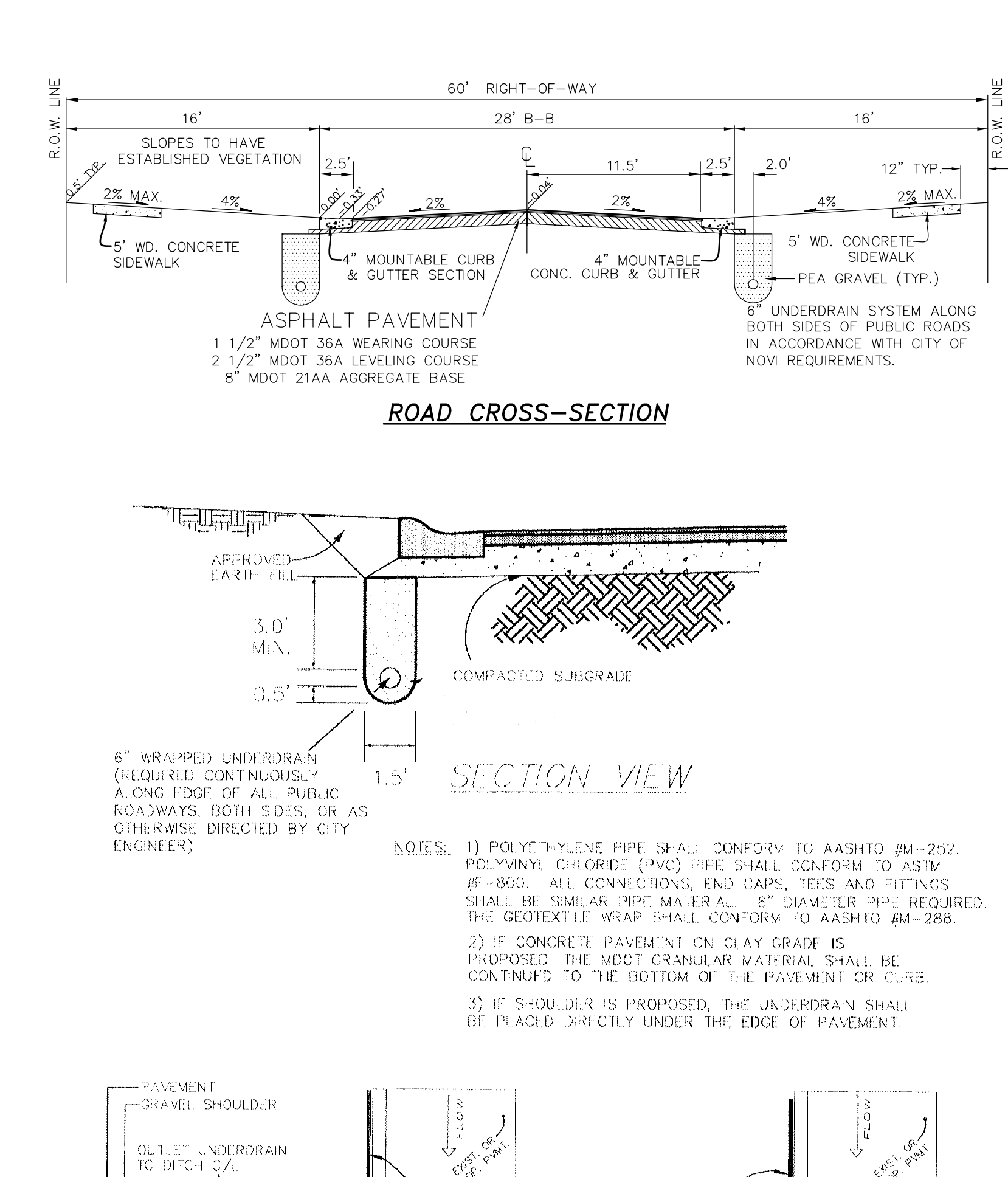
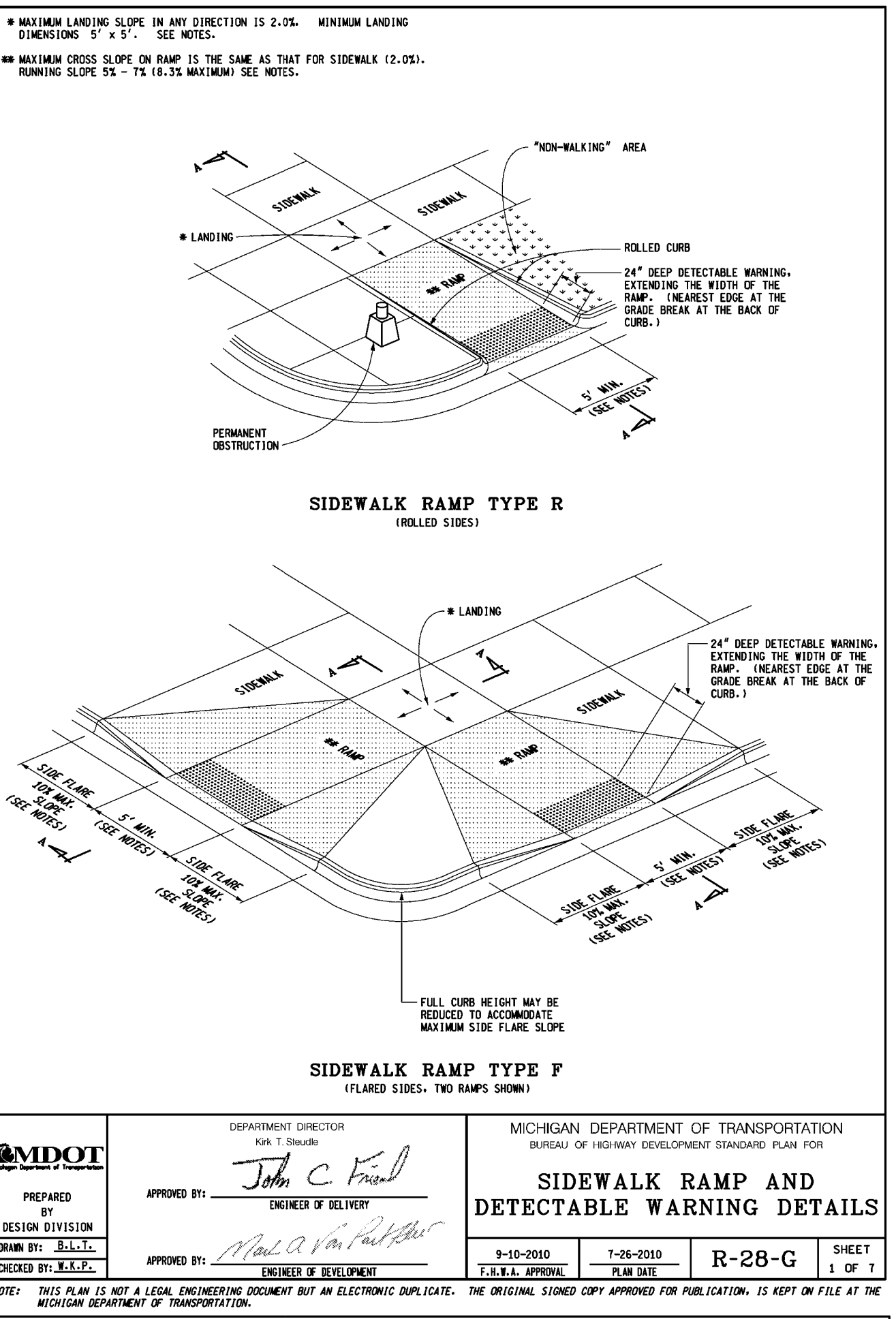
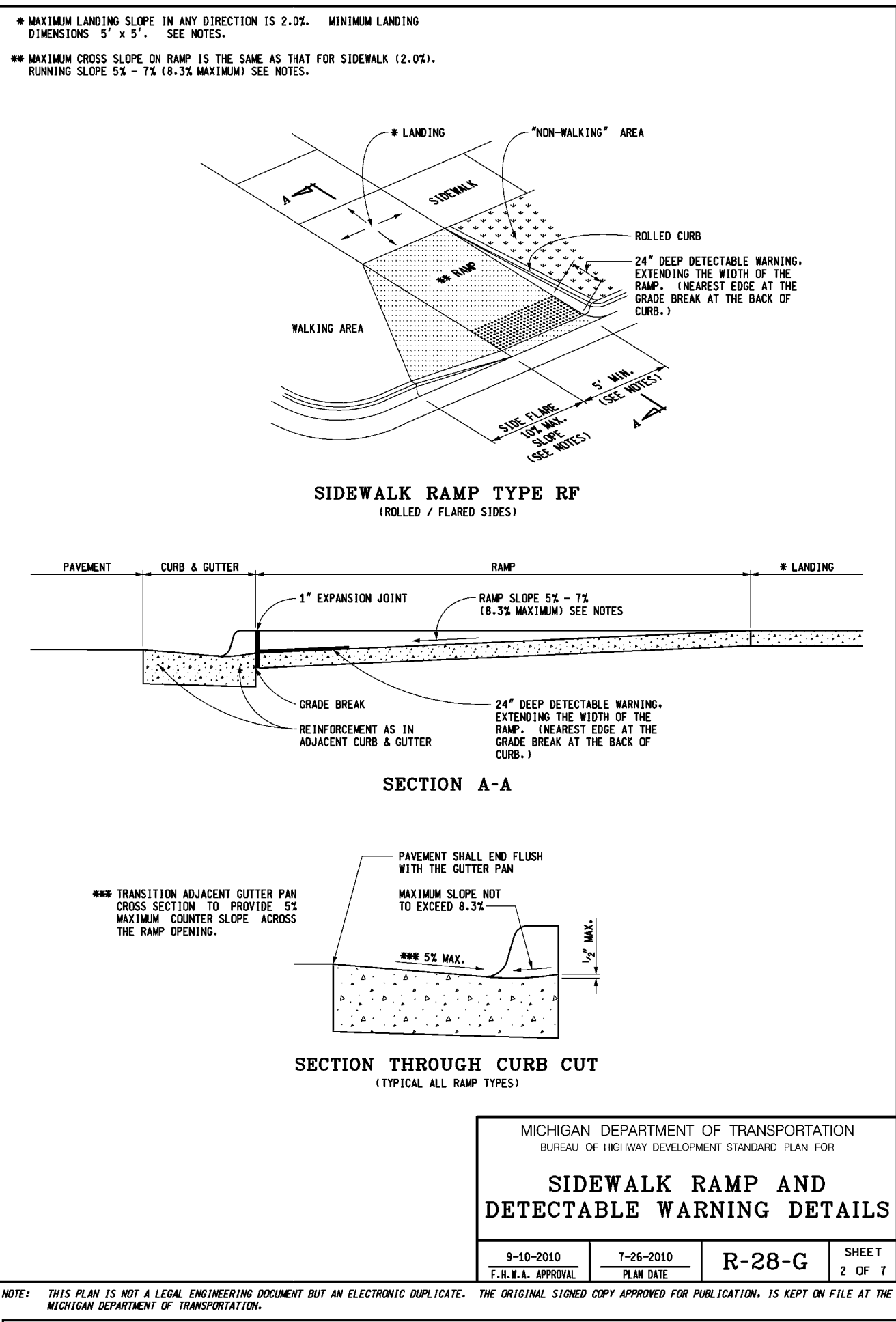
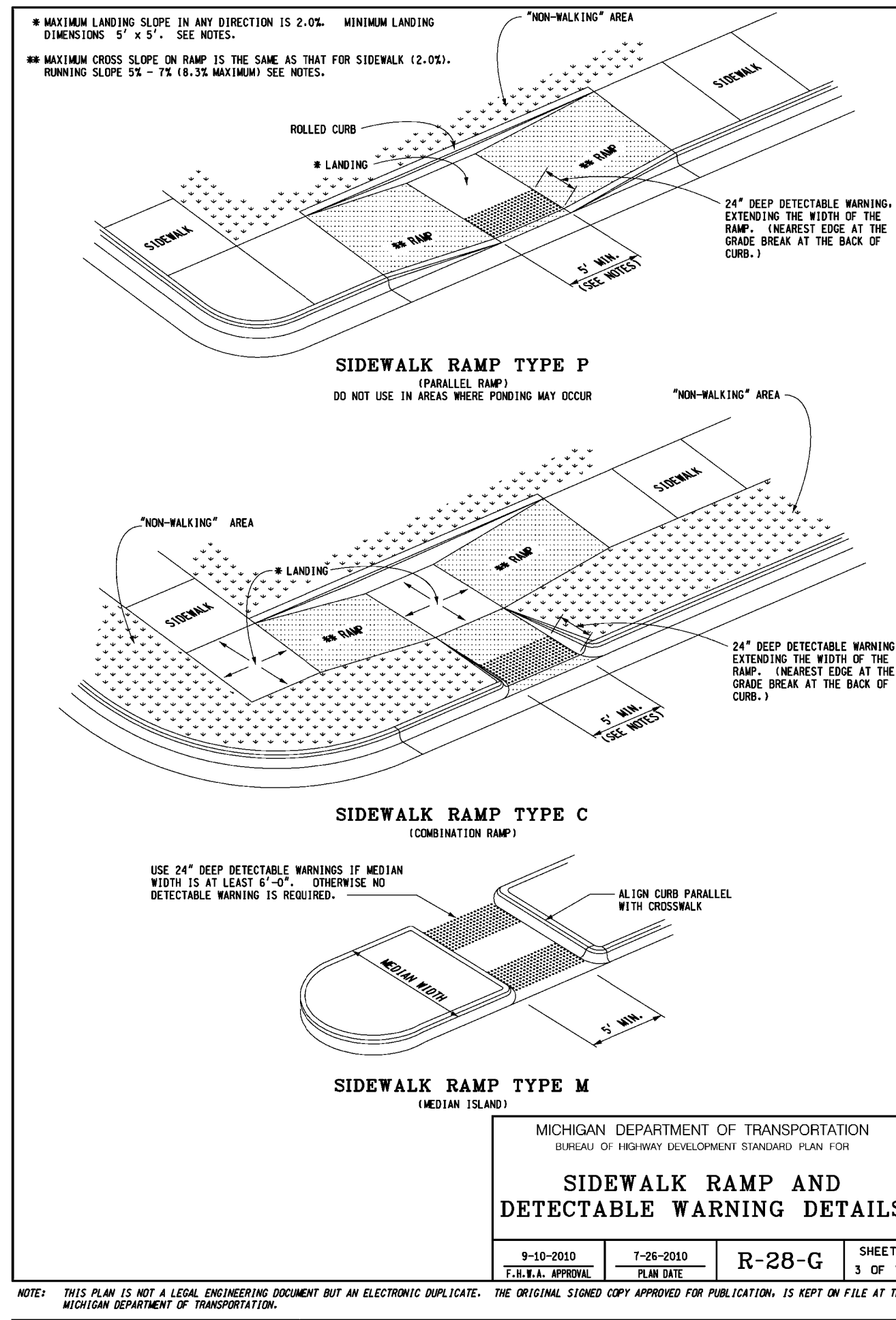
RELEASE BANKFULL FLOOD VOLUME OVER A PERIOD NO MORE THAN 40 HOURS.

THE FIRST FLUSH VOLUME IS DRAINED IN: = 23.8 hours

THE REMAINDER OF THE BANKFULL VOLUME NEEDS TO BE DRAINED IN: = 16.2 hours

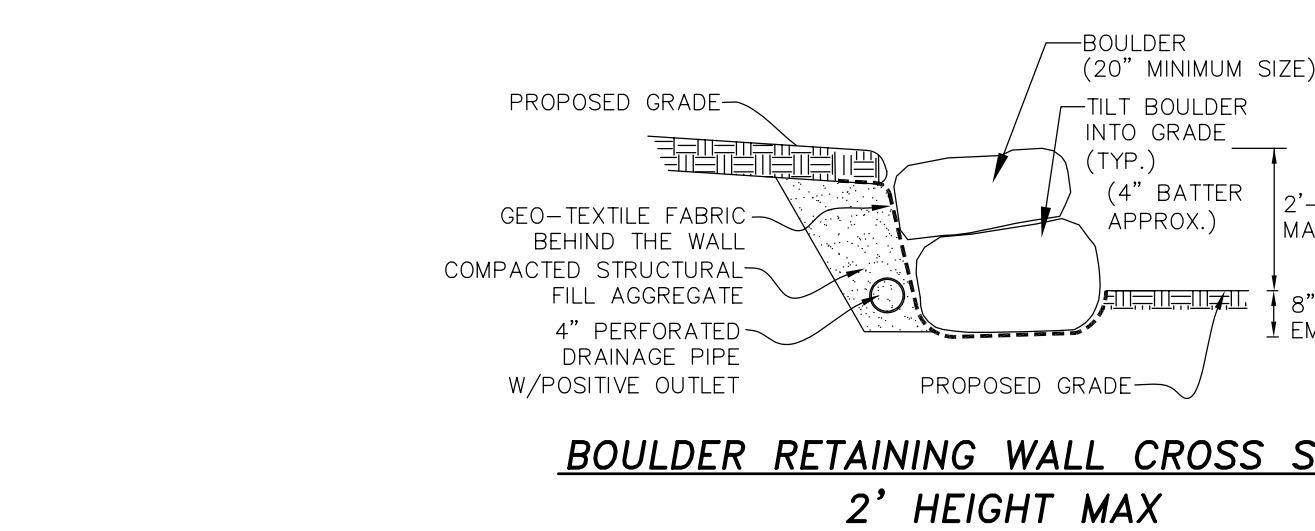
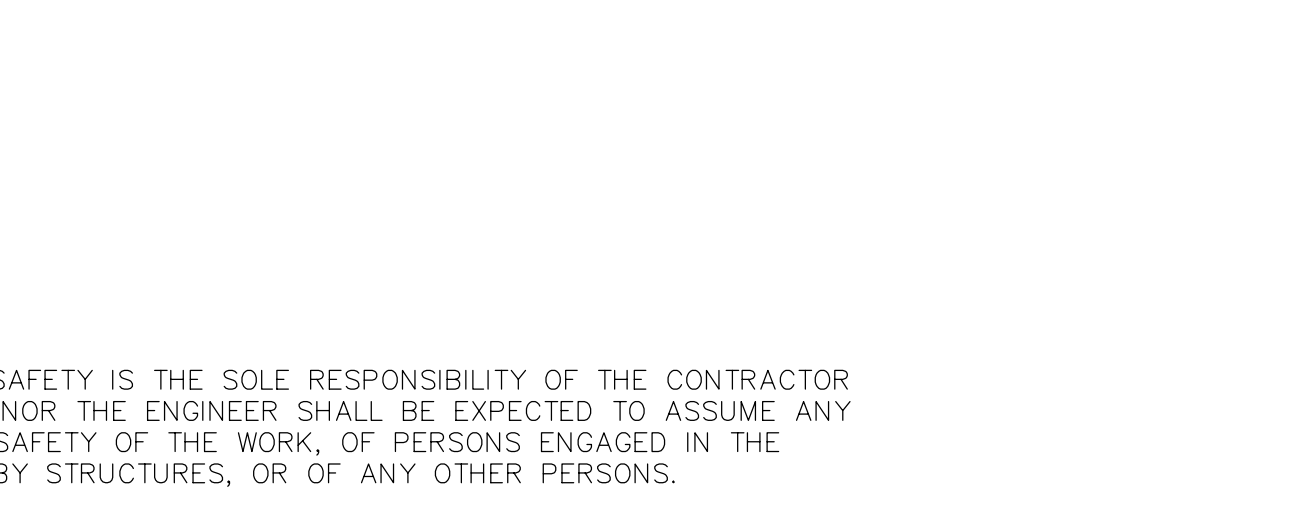
CALCULATE THE AVERAGE RELEASE RATE WHICH WILL SATISFY THIS REQUIREMENT:  
 $Q_{max,fl} = (V_{bf} - V_{fl}) / (40 \cdot T_{bf})$  = 0.27 cfs

CALCULATE AVERAGE HEAD:  
 $h_{max} = 0.667 \cdot (Z_o - Z_o)$  = 1.40 ft



**NOTE:**  
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

**NOTICE:**  
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.



**ALPINE ENGINEERING, INC.**  
CIVIL ENGINEERS & LAND SURVEYORS

COMMERCIAL  
SURVEYING  
SITE PLANNING  
SITE ENGINEERING  
INDUSTRIAL & MULTI-UNIT  
LAND SURVEYING  
CONSTRUCTION LAYOUT

RESIDENTIAL  
SUBDIVISIONS  
SITE CONDOMINIUM  
MULTI-FAMILY  
PLOT PLANS  
CONSTRUCTION LAYOUT

46892 WEST ROAD  
SUITE 109  
NOVI, MICHIGAN 48377

(248) 926-3701 (BUS)  
(248) 926-3765 (FAX)  
WWW.ALPI-INC.NET

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

**TOLL BROTHERS INC.**  
**DETAIL SHEET**

"THE MEADOWS" OF ISLAND LAKE OF NOVI  
RANGES 8 E  
TOWNSHIP 1 N  
CITY OF NOVI  
OAKLAND COUNTY  
MICHIGAN  
SECTION: 20

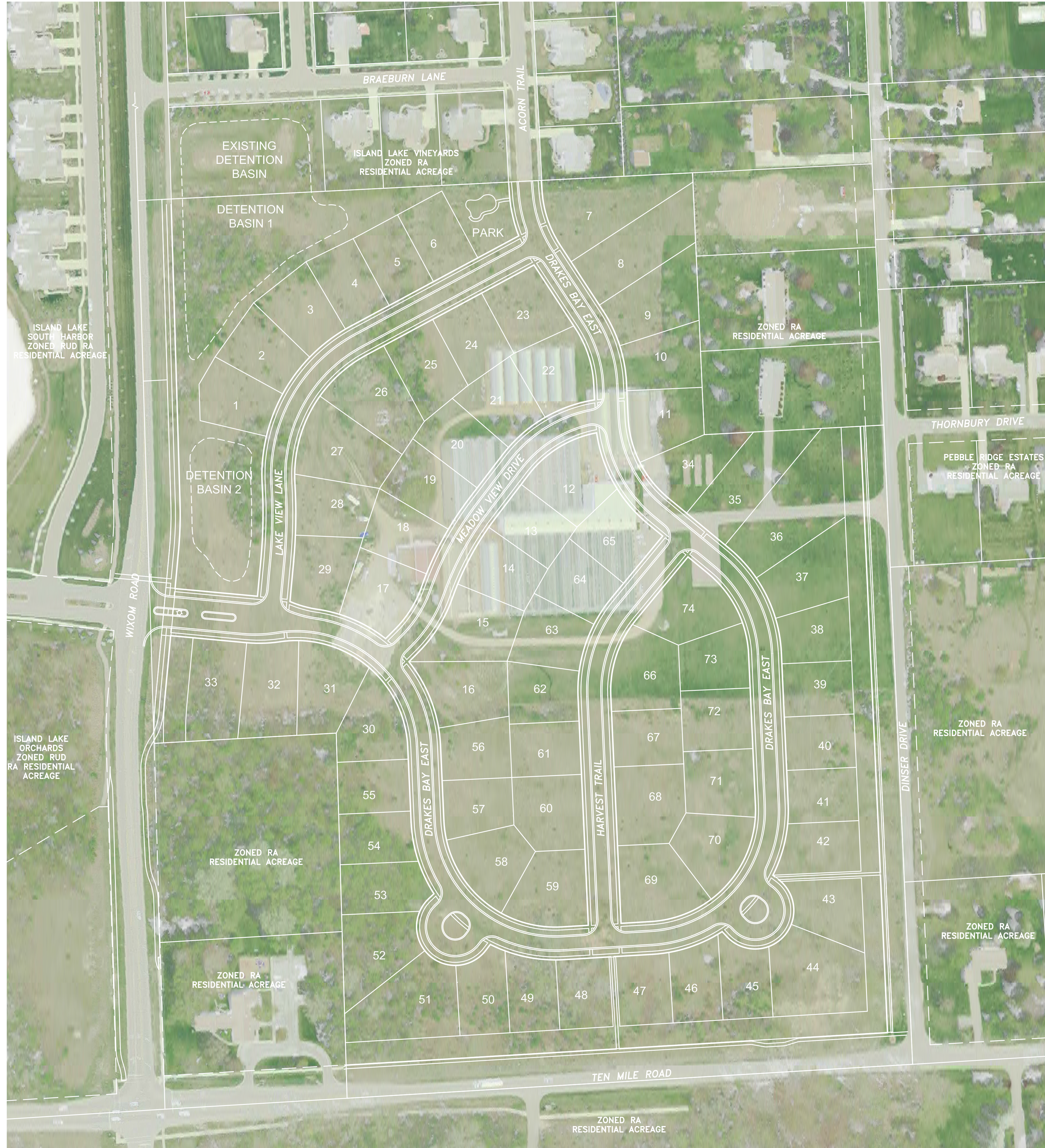
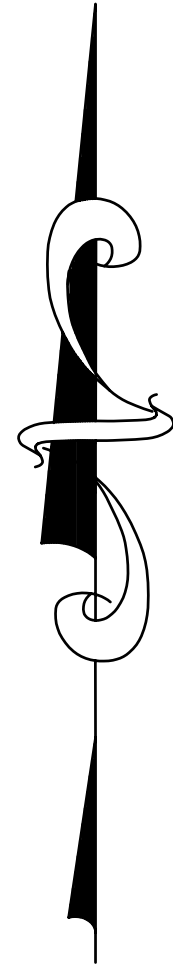
CLIENT:

REVISED  
2012-10-17 PRE-APP. SUBMISSION  
2012-11-09 PSP SUBMISSION  
2012-12-21 PSP RE-SUBMISSION

DATE: 2012-10-08  
DRAWN BY: JP/TG  
CHECKED BY: TG

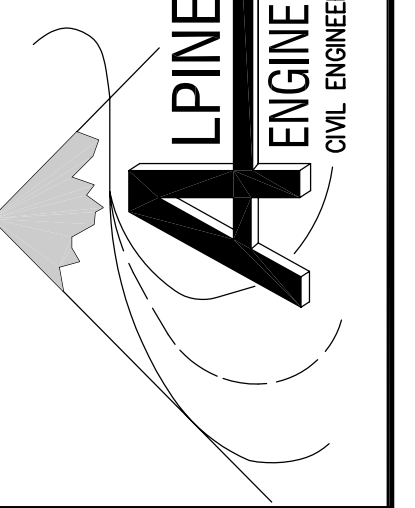
FBK:  
CHF:  
SCALE: HOR 1" = 40' FT.  
VER 1" = 4' FT.

19  
12-362



SURVEYING  
 ALTA SURVEYS  
 BOUNDARY SURVEYS  
 TOPOGRAPHIC SURVEYS  
 PARCEL SPLITS

RESIDENTIAL  
 SUBDIVISIONS  
 SITE CONDOMINIUM  
 MULTI-FAMILY  
 PLOT PLANS  
 CONSTRUCTION LAYOUT



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

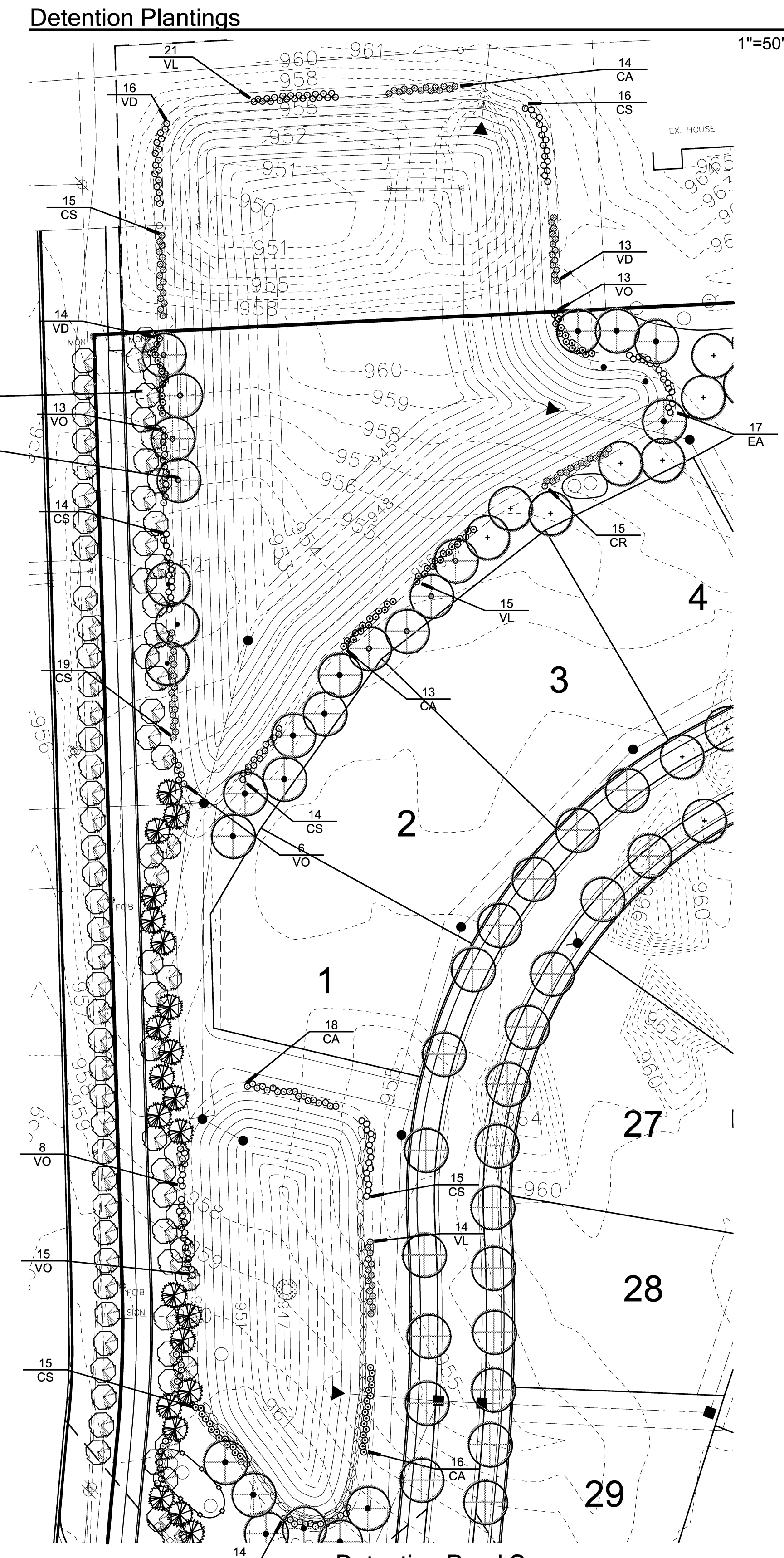
CLIENT: TOLL BROTHERS INC.  
**AERIAL PHOTOGRAPH**  
 "THE MEADOWS" OF ISLAND LAKE OF NOVI  
 TOWNSHIP: 1 N RANGE: 8 E  
 CITY OF NOVI OAKLAND COUNTY MICHIGAN  
 SECTION: 20

REVISED  
 2012-12-21 PSP RE-SUBMISSION

DATE: 2012-12-06  
 DRAWN BY: JPP  
 CHECKED BY: TAG

FBK:  
 CHF:  
 SCALE: HOR 1"=100 FT.  
 VER 1"=-- FT.

20  
 12-362



**Street Tree Summary**

Street Trees	75 Lots
Total Lots 70'-105'	11 Lots
Corner Lots	258 Trees ((75+11) x 3 Trees)
Trees Required	258 Trees
Trees Provided	

**Detention Pond Summary**

High-Water Elevation	1,677 l.f.
Required Planting	1,174 l.f. (70%)
Planting Provided	1,210 l.f. (72%)

**Plant List - Replacement and Street Trees**

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
AS1	8	Acer saccharum	Sugar Maple	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 2,600.00
LT1	8	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 2,600.00
GB	7	Quercus rubra	Red Oak	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 2,275.00
TT1	7	Tilia tomentosa	Silver Linden	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 2,275.00
<b>Street Trees</b>									
AR	13	Acer rubrum	Red Maple	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 4,225.00
AS	41	Acer saccharum	Sugar Maple	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 13,325.00
GB	25	Ginkgo biloba	Ginkgo (Male Species)	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 8,125.00
GT	31	Gleditsia inaequalis var. Inermis	Honeylocust	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 10,075.00
LT	29	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 9,425.00
PC	3	Pyrus calleryana 'Redspire'	Redspire Pear	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 975.00
QR	41	Quercus rubra	Red Oak	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 13,325.00
TC	9	Tilia cordata 'Chocobar'	Chocolate Linden	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 2,925.00
TT	24	Acer saccharum	Sugar Maple	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 7,800.00
UH	40	Ulmus x 'Homestead'	Homestead Elm	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 13,000.00
UP	11	Ulmus x 'Pioneer'	Pioneer Elm	2.5"	as shown	B&B	8.5'	\$ 325.00	\$ 3,575.00
M&B	87	s y 4" Deep Shredded Hardwood Bark Mulch						\$ 46.00	\$ 3,990.00
									\$ 100,000.00

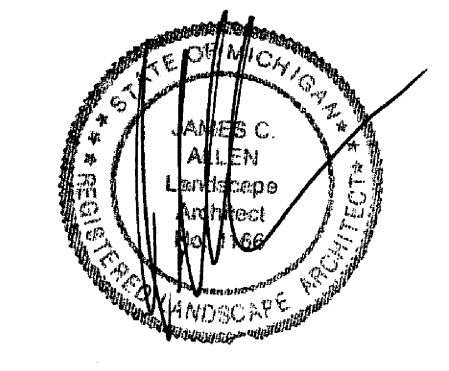
**Plant List - Detention Pond**

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
CA	61	Cornus amomum	Silky Dogwood	as shown	30"	as shown	30"	\$ 50.00	\$ 3,050.00
CR	15	Cornus racemosa	Gray Dogwood	as shown	30"	as shown	30"	\$ 50.00	\$ 750.00
CS	106	Cornus sericea	Red-osier Dogwood	as shown	30"	as shown	30"	\$ 50.00	\$ 5,300.00
EA	17	Eurothymus alba 'Compact'	Compact Burning Bush	as shown	30"	as shown	30"	\$ 50.00	\$ 850.00
VO	57	Viburnum dentatum	Arrowwood	as shown	30"	as shown	30"	\$ 50.00	\$ 2,850.00
VL	50	Viburnum lentago	Nannyberry	as shown	30"	as shown	30"	\$ 50.00	\$ 2,500.00
VO	55	Viburnum trilobum	American Cranberry Bush	as shown	30"	as shown	30"	\$ 50.00	\$ 2,750.00
									\$ 18,150.00

See Sheet L-2 for Greenbelt Plantings



Seal:



Title:  
**Landscape Plan**

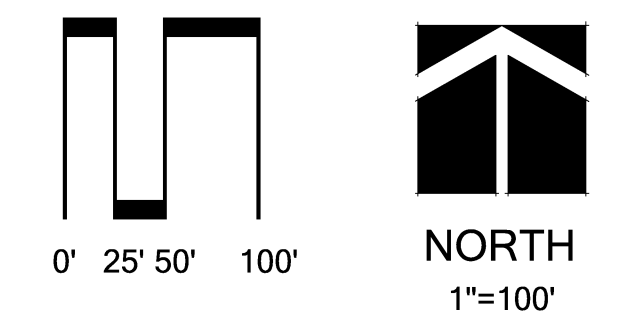
Project:  
**Island Lake of Novi  
Novi, Michigan**

Prepared for:  
Toll Brothers  
39665 William K. Smith Dr., Suite B  
New Hudson, Michigan 48165

Revision:	Issued:
Submission	October 17, 2012
Submission	November 9, 2012
Revised	November 20, 2012
Revised	December 21, 2012

Job Number:  
12-017

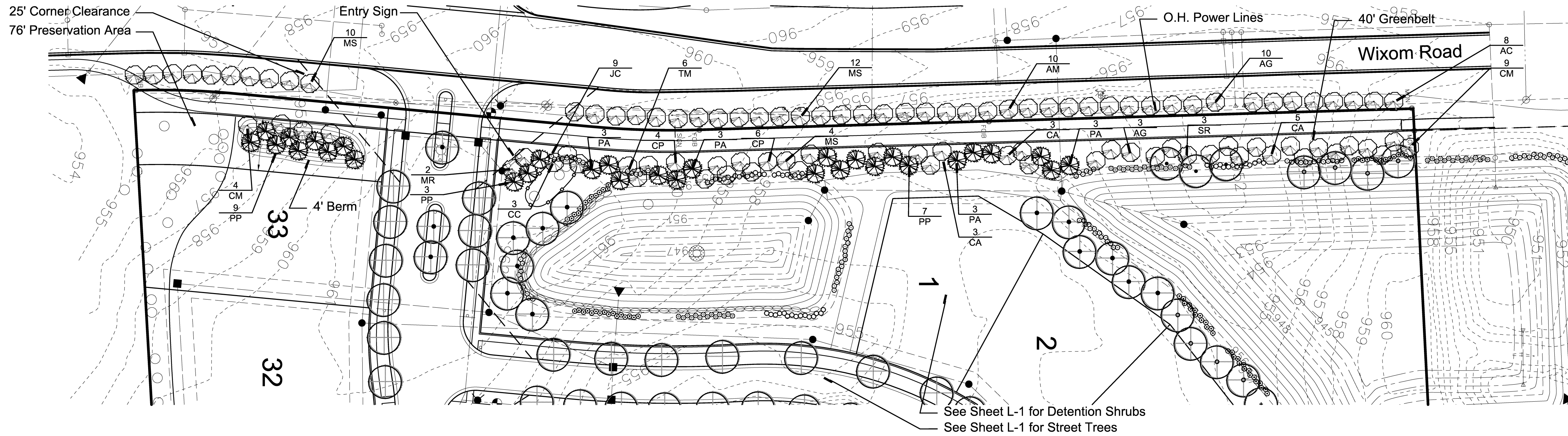
Drawn By: jca      Checked By: jca



Sheet No.



**Wixom Road Greenbelt**



**Entry Sign**



Entry Sign to Match Prior Phase

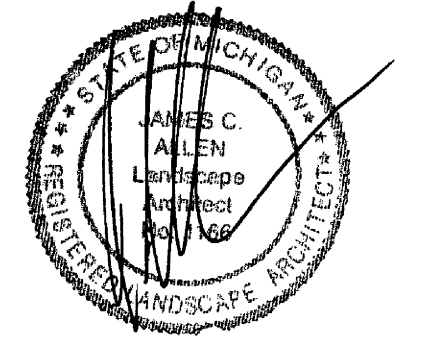
See Sheet L-3 for Plant List



**ALLEN DESIGN**  
LAND PLANNING / LANDSCAPE ARCHITECTURE  
557 CARPENTER • NORTHVILLE, MI 48167  
248.467.4668 • Fax 248.349.0559  
Email: jca@wideopenwest.com

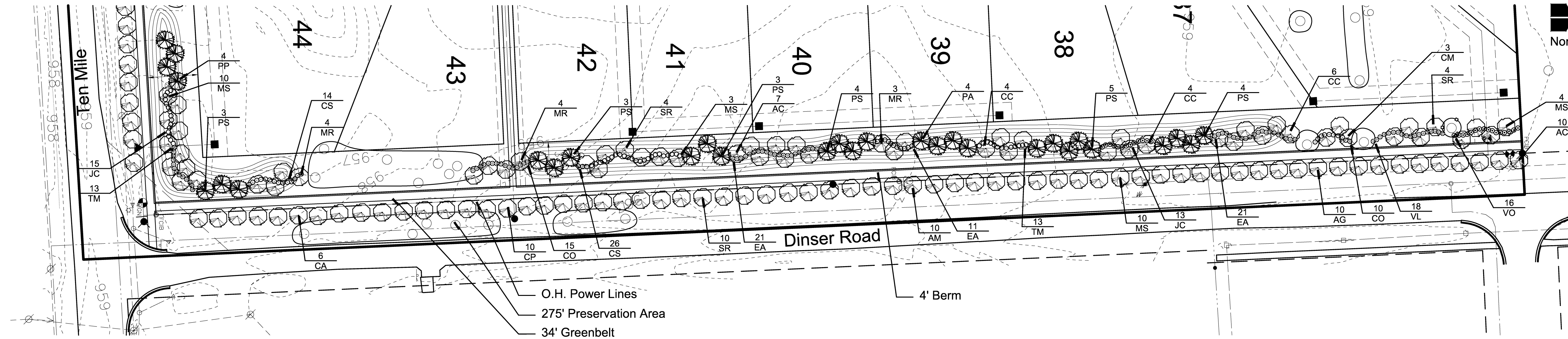


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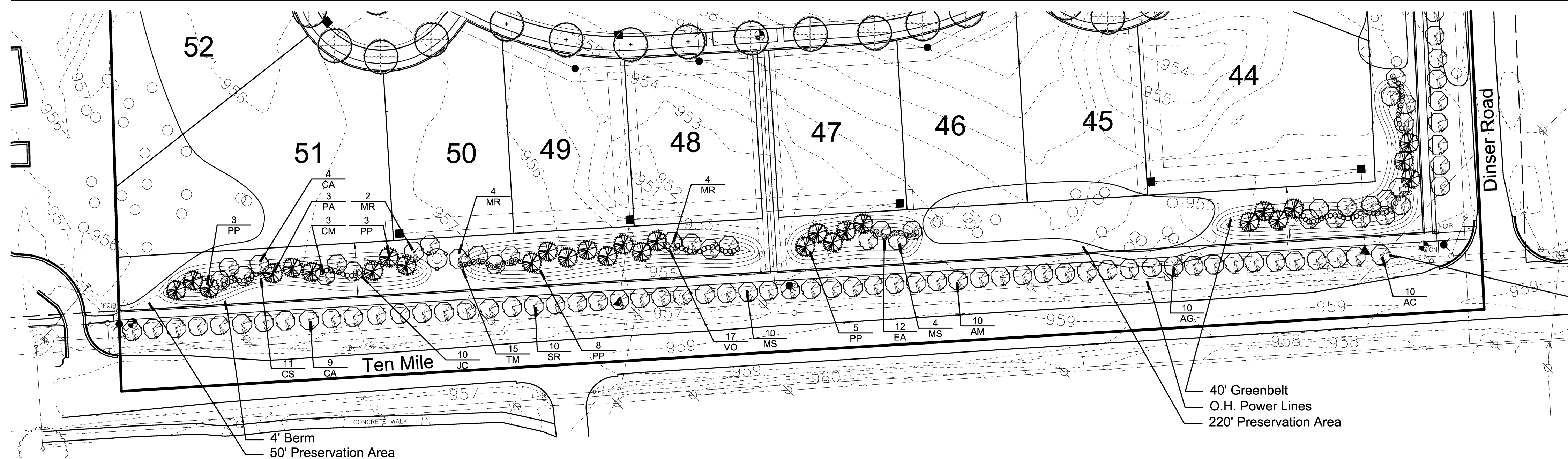


Title:  
**Greenbelt Landscape**

**Dinser Road Greenbelt**



**Ten Road Greenbelt**



**Landscape Summary**

Greenbelt Plantings	
Total Street Frontage	3,073 l.f.
Less Preservation Areas	621 l.f.
Net Frontage	2,452 l.f.
Canopy Trees Required	70 Trees (2,452 / 35)
Canopy Trees Shown	70 Trees
Sub-Canopy Trees Required	132 Trees (2,452 / 20)
Sub-Canopy Trees Shown	132 Trees
Street Lawn	
Ten Mile, Wixom and Dinser (Power Lines)	3,073 l.f.
Total Street Frontage	3,073 l.f.
Street Trees Required	70 Trees (3,073 / 35)
Sub-Canopy In-Lieu of Canopy Trees Due to Power Lines	2 Sub-Canopy Trees per 1 Canopy Tree
Sub-Canopy Trees Required	140 Trees (70 x 2)
Sub-canopy Trees Shown	140 Trees

Project:

Island Lake of Novi  
Novi, Michigan

Prepared for:

Toll Brothers  
39665 William K. Smith Dr., Suite B  
New Hudson, Michigan 48165

Revision:

Submission  
Submission  
Revised

Issued:

October 17, 2012  
November 9, 2012  
December 21, 2012

Job Number:

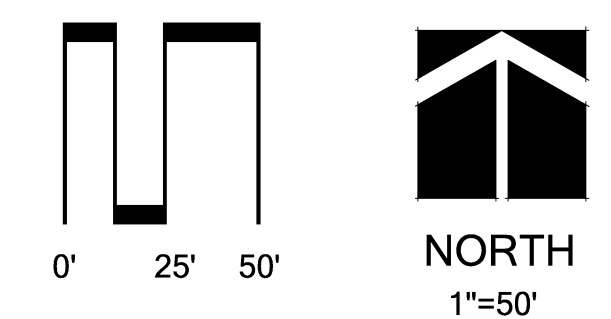
12-017

Drawn By:

jca

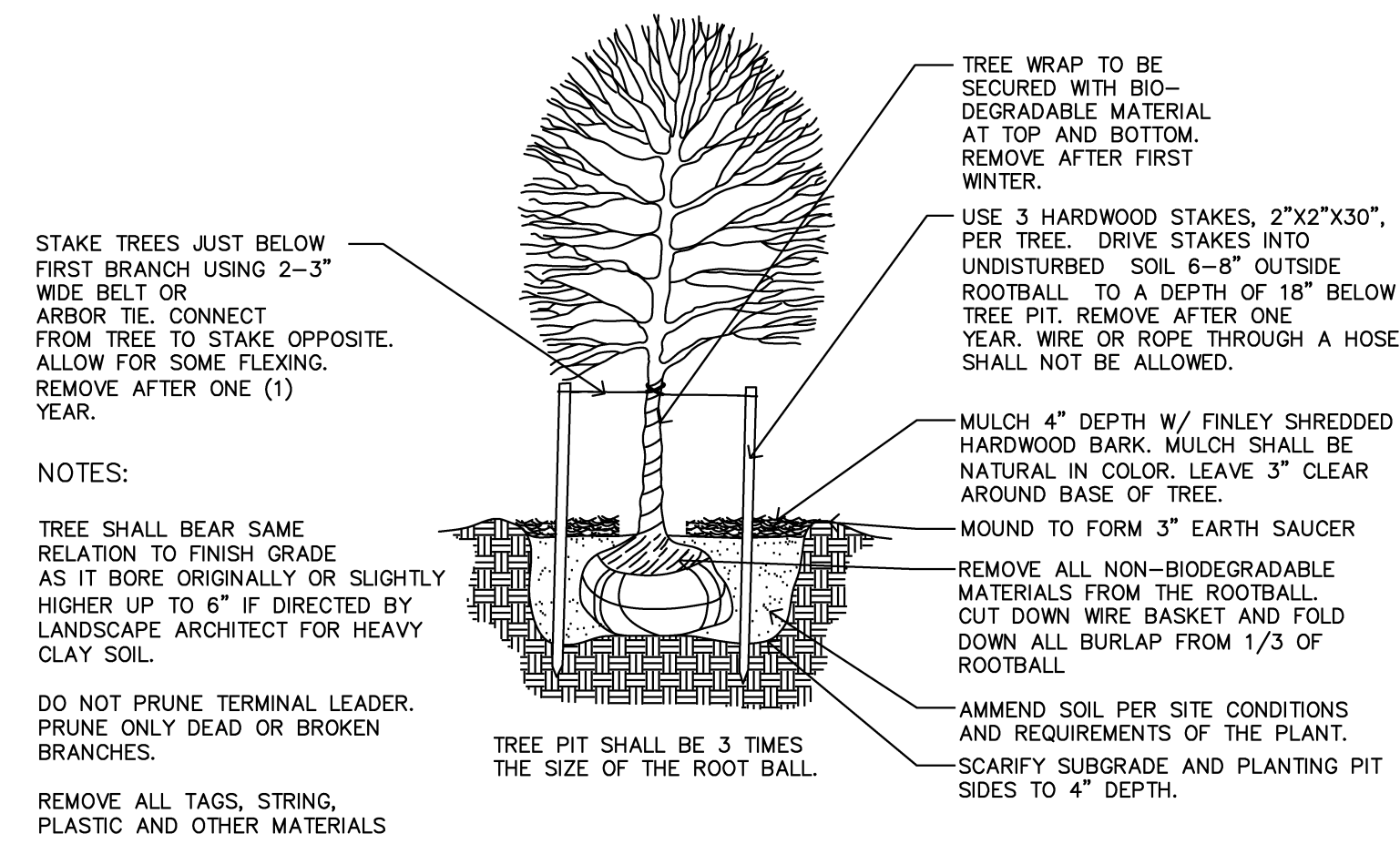
Checked By:

jca



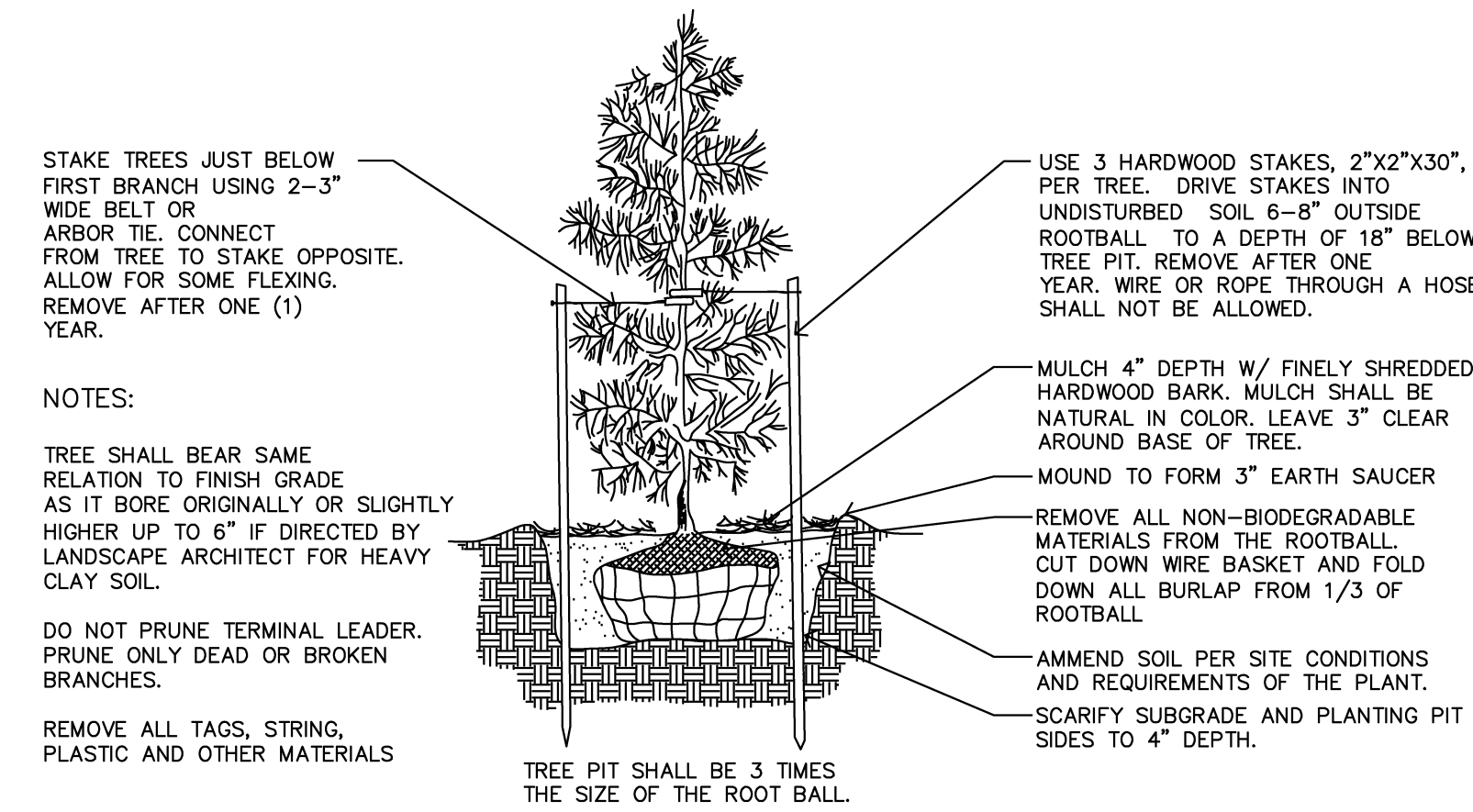
Sheet No.





DECIDUOUS TREE PLANTING DETAIL

NTS



EVERGREEN TREE PLANTING DETAIL

NTS

LANDSCAPE NOTES

- All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
- Plants shall be full, well-branched, and in healthy vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following City approval.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
- "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
- All plantings shall be mulched per planting details located on this sheet.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
- The City of Novi's Landscape Architect shall be notified of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
- Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
- A pre-emergent weed control agent, "Preem" or equal, shall be applied uniformly on top of all mulching in all planting beds.
- All landscape areas shall be provided with an underground automatic sprinkler system.
- Sod shall be two year old "Baron/Cheriadelpi" Kentucky Blue Grass grown in a sod nursery on loam soil.

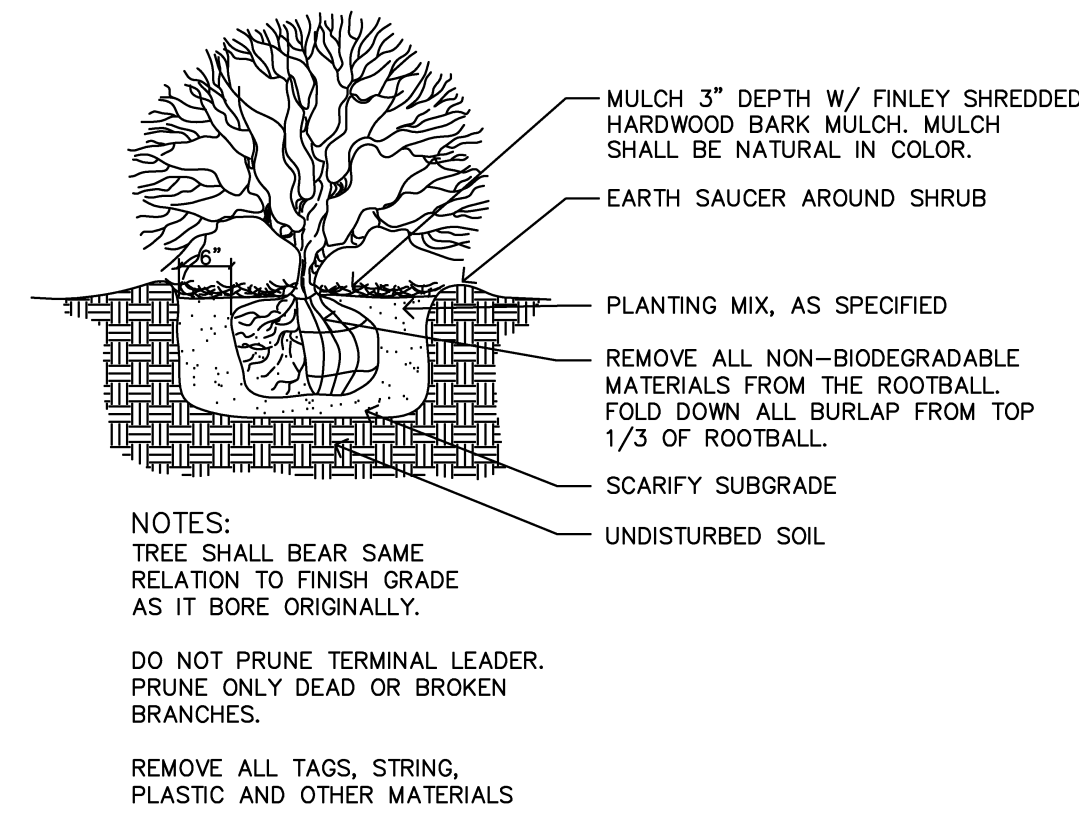
CITY OF NOVI NOTES

- All landscape islands shall be backfilled with a sand mixture to facilitate drainage.
- All proposed landscape islands shall be curbed.
- All landscape areas shall be irrigated.
- Overhead utility lines and poles to be relocated as directed by utility company of record.
- Evergreen and canopy trees shall be planted a minimum of 10' from a fire hydrant, and manhole, 15' from overhead wires.
- All plant material shall be guaranteed for two (2) years after City Approval and shall be installed and maintained according to City of Novi standards. Replace Failing Material During the Next Appropriate Planting Period.
- All proposed street trees shall be planted a minimum of 4' from both the back of curb and proposed walks.
- All tree and shrub planting beds shall be mulched with shredded hardwood bark, spread to minimum depth of 4". All lawn area trees shall have a 4' diameter circle of shredded hardwood mulch 3" away from trunk. All perennial, annual and ground cover beds shall receive 2" of dark colored bark mulch as indicated on the plant list. Mulch is to be free from debris and foreign material, and shall contain no pieces of inconsistent size.
- All Substitutions or Deviations from the Landscape Plan Must be Approved by the City of Novi Prior to their Installation.

NOTES:  
THE APPROXIMATE DATE OF INSTALLATION FOR THE PROPOSED LANDSCAPE WILL BE SPRING 2013.  
THE SITE WILL BE MAINTAINED BY THE DEVELOPER IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE CITY OF NOVI ZONING ORDINANCE. THIS INCLUDES WEEDING AND WATERING AS REQUIRED BY NORMAL MAINTENANCE PRACTICES.

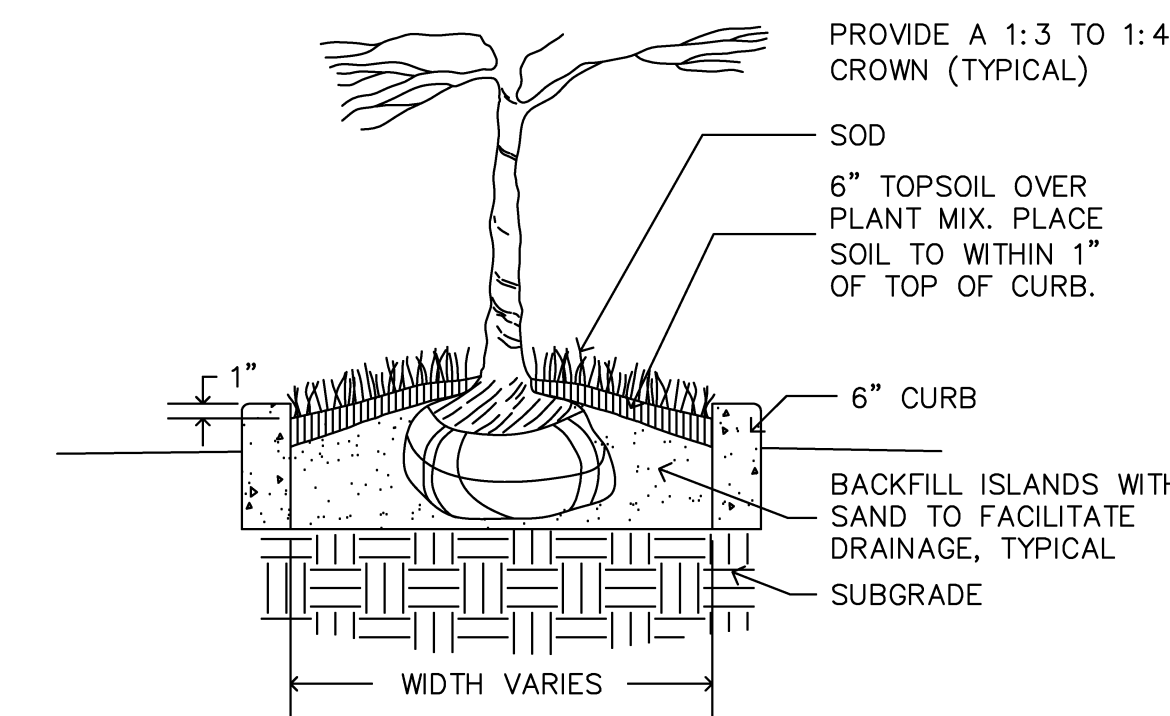
DEVELOPER SHALL BE RESPONSIBLE FOR REPLACING ANY TREES WITHIN UTILITY EASEMENTS THAT ARE DAMAGED THROUGH NORMAL MAINTENANCE OR REPAIRS.

PLANT MATERIALS SHALL BE GUARANTEED FOR 2 YEARS AND SHALL BE MAINTAINED IN ACCORDANCE WITH CITY ORDINANCES. WARRANTY PERIOD BEGINS AT THE TIME OF CITY APPROVAL. WATERING AS NECESSARY SHALL OCCUR DURING THIS WARRANTY PERIOD.



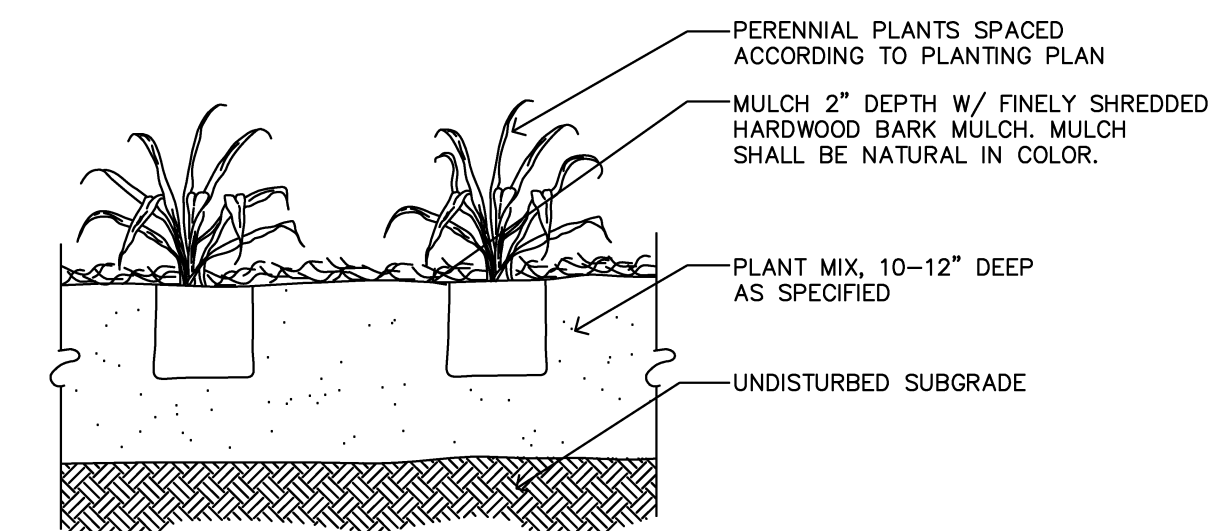
SHRUB PLANTING DETAIL

NTS



CURBED ISLAND DETAIL

NTS



NOTE:  
PERENNIALS TO BE PLANTED UP TO SAUCER AROUND TREE OR SHRUB IN THE AREA.

PERENNIAL PLANTING DETAIL

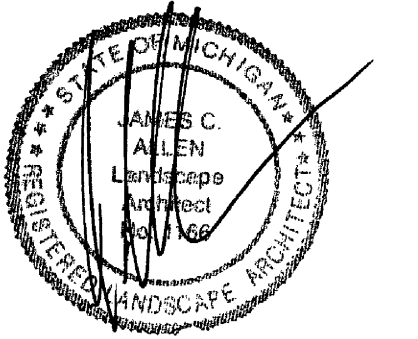
NTS

Plant List

syn	qty	botanical name	common name	caliper	spacing	root	height	price	total
AC	35	Acer campestre	Hedge Maple	2.5"	as shown	B&B		\$ 250.00	\$ 8,750.00
AG	33	Acer ginnala	Amur maple	2.5"	as shown	B&B		\$ 250.00	\$ 8,250.00
AM	30	Amelanchier canadensis	Serviceberry	2.5"	as shown	B&B		\$ 250.00	\$ 7,500.00
CA	30	Cornus alternifolia	Alternate Leaf Dogwood	2.5"	as shown	B&B		\$ 250.00	\$ 7,500.00
CC	17	Cercis canadensis	Redbud	2.5"	as shown	B&B		\$ 250.00	\$ 4,250.00
CM	19	Cornus mas	Cornalian Cherry Dogwood	2.5"	as shown	B&B		\$ 250.00	\$ 4,750.00
CO	25	Cornus amomum	Silky Dogwood		as shown		36"	\$ 50.00	\$ 1,250.00
CP	20	Crataegus p. 'Presidential'	Presidential Hawthorn	2.5"	as shown	B&B		\$ 250.00	\$ 5,000.00
CS	51	Cornus sericea	Red-osier Dogwood		as shown		36"	\$ 50.00	\$ 2,550.00
EA	44	Euonymus alta 'Compact'	Compact Burning Bush		as shown		36"	\$ 50.00	\$ 2,200.00
JC	47	Juniperus ch. 'Hetzi'	Hetz Juniper		as shown		36"	\$ 50.00	\$ 2,350.00
MR	23	Malus 'Radiant'	Radiant Crab	2.5"	as shown	B&B		\$ 250.00	\$ 5,750.00
MS	67	Malus 'Spring Snow'	Spring Snow Crab	2.5"	as shown	B&B		\$ 250.00	\$ 16,750.00
PA	19	Picea abies	Norway Spruce		as shown	B&B	8'	\$ 350.00	\$ 6,650.00
PP	42	Picea pungens	Colorado Spruce		as shown	B&B	8'	\$ 350.00	\$ 14,700.00
PS	22	Pinus strobus	White Pine		as shown	B&B	8'	\$ 350.00	\$ 7,700.00
SR	31	Syringa reticulata	Japanese Flowering Lilac	2.5"	as shown	B&B		\$ 250.00	\$ 7,750.00
TM	47	Taxus x media 'Densiflora'	Dense Yew		as shown		36"	\$ 50.00	\$ 2,350.00
VL	18	Viburnum lentago	Nannyberry		as shown		36"	\$ 50.00	\$ 900.00
VO	33	Viburnum trilobum	American Cranberry Bush		as shown		36"	\$ 50.00	\$ 1,650.00
		112 s.y 4" Deep Shredded Hardwood Bark Mulch						\$40/s.y.	\$ 4,480.00
		11,609 s.f. Kentucky Blue Grass						\$ 4.00	\$ 46,436.00
		Irrigation							\$ 20,000.00
									\$ 189,466.00



Seal:



Title:

Landscape Details

Project:

Island Lake of Novi  
Novi, Michigan

Prepared for:

Toll Brothers  
39665 William K. Smith Dr., Suite B  
New Hudson, Michigan 48165

Revision:

Issued:

Submission	October 17, 2012
Submission	November 9, 2012
Revised	December 21, 2012

Job Number:

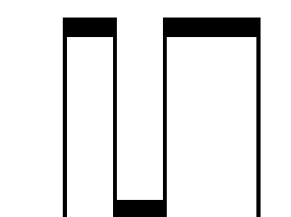
12-017

Drawn By:

Checked By:

jca

jca



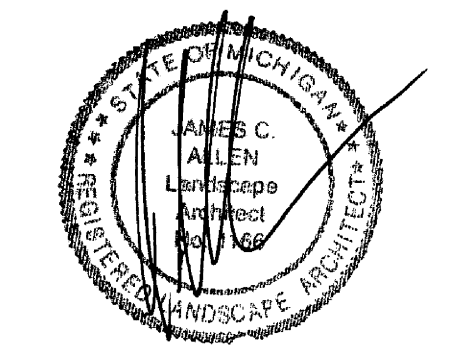
NORTH

Sheet No.





Seal:



Title:  
**Woodland Plan**

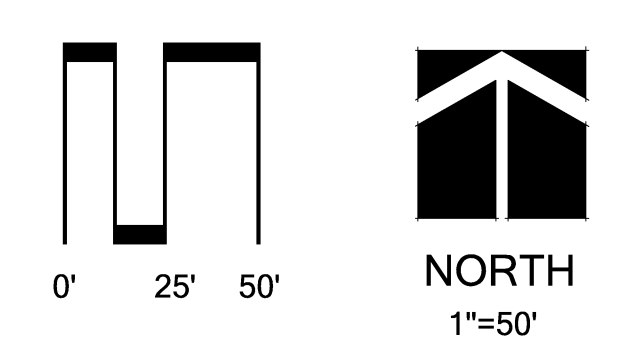
Project:  
**Island Lake of Novi  
 Novi, Michigan**

Prepared for:  
 Toll Brothers  
 39665 William K. Smith Dr., Suite B  
 New Hudson, Michigan 48165

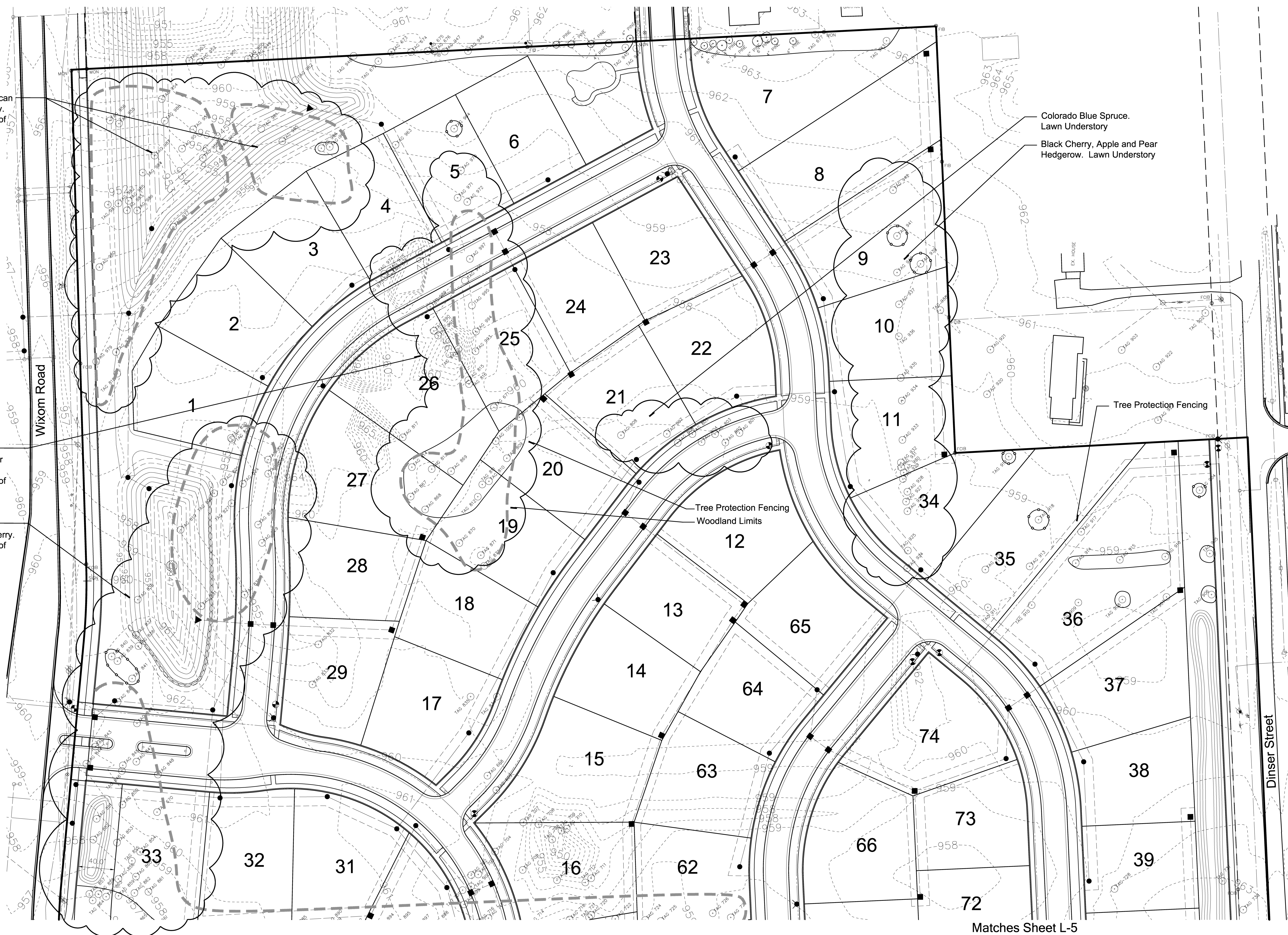
Revision:	Issued:
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Job Number:  
 12-017

Drawn By: jca      Checked By: jca



Sheet No.



Predominately American Elm and Black Cherry. Understory Consists of smaller Species and Buckthorn.

Mix of Sugar Maple, American Elm, Poplar and Black Cherry. Understory Consists of smaller Species and Buckthorn.

Mix of American Elm, Poplar and Black Cherry. Understory Consists of smaller Species and Buckthorn.

Colorado Blue Spruce. Lawn Understory  
 Black Cherry, Apple and Pear Hedgerow. Lawn Understory

Tree Protection Fencing

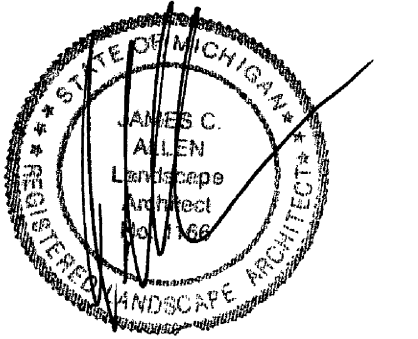
Tree Protection Fencing  
 Woodland Limits

Matches Sheet L-5

See Sheet L-5 for Replacement Information  
 See Sheet L-6 for Tree List



Seal:



Title:

**Woodland Plan**

Project:

**Island Lake of Novi  
Novi, Michigan**

Prepared for:

Toll Brothers  
39665 William K. Smith Dr., Suite B  
New Hudson, Michigan 48165

Revision:

Submission  
Submission  
Revised

Issued:

October 17, 2012  
November 9, 2012  
December 21, 2012

Job Number:

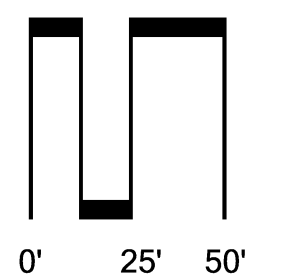
12-017

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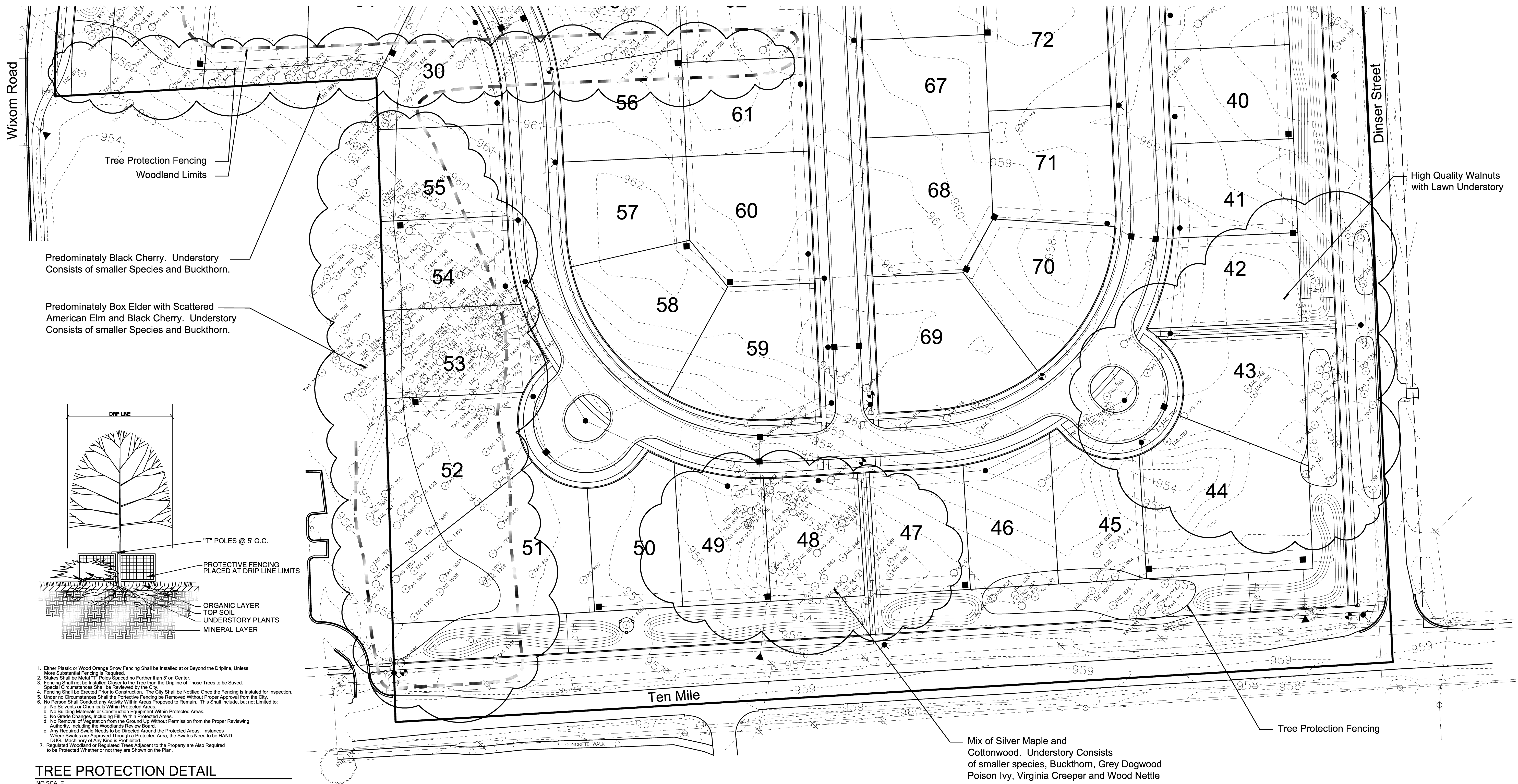
jca

Checked By:

jca



Sheet No.



**TREE PROTECTION DETAIL**

NO SCALE

1. Either Plastic or Wood Orange Snow Fencing Shall be Installed at or Beyond the Dripline, Unless More Substantial Fencing is Required.
2. Stakes Shall be Metal T<sup>1</sup>/<sub>2</sub>" Poles Spaced no Further than 5' on Center.
3. Fencing Shall not be Installed Closer to the Tree than the Dripline of Those Trees to be Saved. Special Circumstances Shall be Reviewed by the City.
4. Fencing Shall be Erected Prior to Construction. The City Shall be Notified Once the Fencing is Installed for Inspection.
5. Under no Circumstances Shall the Protective Fencing be Removed Without Proper Approval from the City.
6. No Person Shall Conduct any Activity Within Areas Proposed to Remain. This Shall include, but not Limited to:
  - a. No Solvents or Chemicals Within Protected Areas.
  - b. No Building Materials or Construction Equipment Within Protected Areas.
  - c. No Grade Changes, including Fill, Within Protected Areas.
  - d. No Removal of Vegetation from the Ground Up Without Permission from the Proper Reviewing Authority, including the Woodlands Review Board.
  - e. Any Required Swales Needs to be Directed Around the Protected Areas. Instances Where Swales are Approved Through a Protected Area, the Swales Need to be HAND DUG. Machinery of Any Kind is Prohibited.
7. Regulated Woodland or Regulated Trees Adjacent to the Property are Also Required to be Protected Whether or not they are Shown on the Plan.

**Woodland Summary**

Total Trees	457 Trees
Less Non - Regulated Trees:	
Exempt - Removed Trees	58 Trees
Non - Woodland Trees	103 Trees
Net Regulated Trees	296 Regulated Trees
Regulated Trees Removed	143 Trees
Regulated Trees Preserved	153 Trees (51.6%)
Replacement Required	
Trees 8" - 11"	92 trees x 1= 92 Trees
Trees 11" - 20"	31 trees x 2= 62 Trees
Trees 20" - 30"	3 trees x 3= 9 Trees
Trees 30"+	2 trees x 4= 8 Trees
Multi-Stemmed Trees	49 Trees
Sub-total Replacement Required	220 Trees
Less Credit:	180 Trees
Replacement Required	40 Trees

Woodland Credits for Non-Woodland Preservation

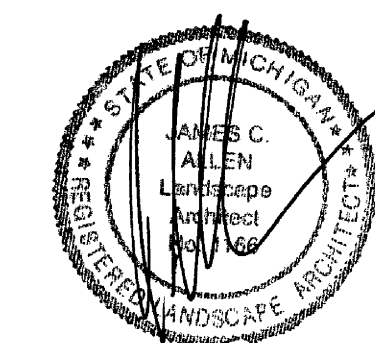
Tree Size	3"-7"	7"-12"	12"-17"	17"-23"	23"-29"	29"-36"
Quantity	8	46	11	6	1	3
Credits	1 tree	2 trees	3 trees	4 trees	5 trees	6 trees
Total	8 trees	92 trees	33 trees	24 trees	5 trees	18 trees = 180 Tree Credits

See Sheet L-6 for Tree List  
See Sheet L-1 for Replacement  
Tree Locations





Seal:



Title:

# Tree List

Project:

## Island Lake of Novi Novi, Michigan

Prepared for:

Toll Brothers  
39665 William K. Smith Dr., Suite B  
New Hudson, Michigan 48165

Revision:

Issued:

Submission: October 17, 2012  
Revision: November 9, 2012  
Revised: December 21, 2012

Job Number:

12-017

Drawn By:

Checked By:

jca

jca

Sheet No.

### Tree List

TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	ELEVATION	STATUS	TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	ELEVATION	STATUS	TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	ELEVATION	STATUS	TAG NO.	DIAMETER	COMMON NAME	BOTANICAL NAME	CONDITION	ELEVATION	STATUS
601	6	Black Cherry	Prunus serotina	Good	956.0	Exempt- Remove	733	26	Black Walnut	Juglans nigra	Good	962.1	Save	852	6	Black Cherry	Prunus serotina	Good	958.0	Exempt- Remove	963	8.9	Black Cherry	Prunus serotina	Good	959.3	Remove
602	7	American Elm	Ulmus americana	Good	955.6	Exempt- Remove	734	30	Black Walnut	Juglans nigra	Good	961.1	Save	853	6	Black Cherry	Prunus serotina	Good	958.6	Exempt- Remove	964	9	Black Cherry	Prunus serotina	Good	960.6	Save
603	10	American Elm	Ulmus americana	Good	955.4	Remove	735	7.8	Black Walnut	Juglans nigra	Good	955.5	Save	854	6	Silver Maple	Acer saccharinum	Good	959.0	Exempt- Remove	965	7	Black Cherry	Prunus serotina	Good	957.0	Exempt- Remove
604	18	American Elm	Ulmus americana	Good	955.1	Exempt- Remove	736	14	Black Walnut	Juglans nigra	Good	956.8	Save	855	6	Black Cherry	Prunus serotina	Good	958.6	Exempt- Remove	966	13	Muberry	Morus alba	Good	957.2	Save
605	9	Silver Maple	Acer saccharinum	Good	956.1	Remove	737	11	Black Walnut	Juglans nigra	Good	956.2	Save	856	7	American Elm	Ulmus americana	Good	957.5	Exempt- Remove	967	6	Black Cherry	Prunus serotina	Good	957.4	Save
606	18	Eastern Cottonwood	Populus deltoides	Good	956.6	Save	738	33	Black Walnut	Juglans nigra	Good	956.8	Save	857	6	American Elm	Ulmus americana	Good	956.1	Save	968	32	Black Cherry	Prunus serotina	Good	957.4	Remove
607	8	Box Elder	Acer negundo	Good	957.5	Non-woodland	739	4.6, 7	American Elm	Ulmus americana	Good	956.0	Non-woodland	858	8	Black Cherry	Prunus serotina	Good	956.0	Save	969	8	Black Cherry	Prunus serotina	Good	958.2	Remove
608	29	Black Walnut	Juglans nigra	Good	958.3	Non-woodland	740	6.8, 14	Silver Maple	Acer saccharinum	Good	956.0	Non-woodland	859	8	American Elm	Ulmus americana	Good	956.5	Save	970	9	Black Cherry	Prunus serotina	Good	958.2	Remove
609	18	Black Walnut	Juglans nigra	Good	956.9	Non-woodland	741	16	Black Walnut	Juglans nigra	Good	957.1	Save	860	7	Black Cherry	Prunus serotina	Good	958.1	Exempt- Remove	971	7	Black Cherry	Prunus serotina	Good	957.8	Exempt- Remove
610	16	American Elm	Ulmus americana	Good	958.3	Non-woodland	742	20	Black Walnut	Juglans nigra	Good	957.2	Save	861	7	Box Elder	Acer negundo	Good	956.4	Exempt- Remove	972	18	Sugar Maple	Acer saccharum	Good	957.8	Remove
611	11	Black Cherry	Prunus serotina	Good	951.9	Non-woodland	743	9, 11, 12	Black Walnut	Juglans nigra	Good	957.7	Save	862	dead						973	10	Eastern Cottonwood	Populus deltoides	Good	957.8	Remove
612	13	Black Cherry	Prunus serotina	Good	952.1	Non-woodland	744	12	Black Walnut	Juglans nigra	Good	958.4	Save	863	9	Black Cherry	Prunus serotina	Good	958.0	Save	974	12	Eastern Cottonwood	Populus deltoides	Good	957.7	Remove
613	15	Black Walnut	Juglans nigra	Good	951.1	Non-woodland	745	12	Black Walnut	Juglans nigra	Good	958.5	Save	864	6	Black Cherry	Prunus serotina	Good	955.5	Save	975	14	Eastern Cottonwood	Populus deltoides	Good	957.6	Remove
614	13	Black Walnut	Juglans nigra	Good	952.2	Non-woodland	746	12	Black Walnut	Juglans nigra	Good	958.6	Save	865	6	Box Elder	Acer negundo	Good	956.0	Save	976	13, 22	Eastern Cottonwood	Populus deltoides	Good	957.5	Remove
615	17	Black Walnut	Juglans nigra	Good	952.4	Non-woodland	747	6, 9	Black Walnut	Juglans nigra	Good	956.6	Save	866	12	Black Cherry	Prunus serotina	Good	956.3	Save	977	8	Box Elder	Acer negundo	Good	954.4	Remove
616	9, 16	Black Walnut	Juglans nigra	Good	958.3	Remove	748	9	Black Walnut	Juglans nigra	Good	958.7	Non-woodland	867	8	White Ash	Fraxinus americana	Good	958.8	Save	978	8	Black Walnut	Juglans nigra	Good	955.0	Remove
617	13	Eastern Cottonwood	Populus deltoides	Good	953.9	Remove	749	8	Black Walnut	Juglans nigra	Good	958.5	Non-woodland	868	14	Black Cherry	Prunus serotina	Good	958.5	Save	979	8	Black Walnut	Juglans nigra	Good	954.9	Remove
618	8	Eastern Cottonwood	Populus deltoides	Good	953.7	Remove	750	14	Black Walnut	Juglans nigra	Good	958.1	Non-woodland	869	6	White Ash	Fraxinus americana	Good	958.6	Save	980	15	Silver Maple	Acer saccharinum	Good	953.3	Remove
619	17, 20	Eastern Cottonwood	Populus deltoides	Good	953.3	Remove	751	18	Black Walnut	Juglans nigra	Good	958.0	Non-woodland	870	7	Black Cherry	Prunus serotina	Good	959.0	Exempt- Remove	981	12	Silver Maple	Acer saccharinum	Good	951.5	Remove
620	16	Eastern Cottonwood	Populus deltoides	Good	953.8	Remove	752	10	Box Elder	Acer negundo	Good	958.1	Non-woodland	871	10, 14, 28	Silver Maple	Acer saccharinum	Good	960.2	Save	982	9	American Elm	Ulmus americana	Good	951.4	Remove
621	17, 20	Eastern Cottonwood	Populus deltoides	Good	952.8	Remove	753	11	Black Walnut	Juglans nigra	Good	958.4	Non-woodland	872	21	American Elm	Ulmus americana	Good	960.0	Remove	983	9	American Elm	Ulmus americana	Good	952.4	Remove
622	4.5, 8, 13	Silver Maple	Acer saccharinum	Good	952.9	Remove	754	16	Box Elder	Acer negundo	Good	956.5	Non-woodland	873	15	Black Cherry	Prunus serotina	Good	955.0	Save	984	8	Box Elder	Acer negundo	Good	952.4	Remove
623	8	American Elm	Ulmus americana	Good	956.7	Remove	755	13	Box Elder	Acer negundo	Good	957.7	Non-woodland	874	18	Black Cherry	Prunus serotina	Good	955.4	Save	985	10	Black Cherry	Prunus serotina	Good	951.6	Remove
624	11	Black Cherry	Prunus serotina	Good	958.1	Remove	756	12	Hetz Juniper	Juniperus ch. 'Hetz'	Good	959.1	Non-woodland	875	7	Box Elder	Acer negundo	Good	954.8	Save	986	7	Box Elder	Acer negundo	Good	951.6	Exempt- Remove
625	14	Black Cherry	Prunus serotina	Good	957.4	Save	757	20	Black Cherry	Prunus serotina	Good	950.9	Save	876	11	Box Elder	Acer negundo	Good	955.1	Save	987	13	Black Cherry	Prunus serotina	Good	952.9	Remove
626	16	Black Cherry	Prunus serotina	Good	957.3	Save	758	13	Black Cherry	Prunus serotina	Good	955.1	Save	877	5.5, 5.8	Basswood	Tilia americana	Good	956.9	Save	988	7	Black Cherry	Prunus serotina	Good	954.4	Remove
627	8	Black Cherry	Prunus serotina	Good	956.3	Remove	759	16	Black Walnut	Juglans nigra	Good	957.7	Save	878	15, 20	Black Cherry	Prunus serotina	Good	957.9	Save	989	11, 12, 13	Black Cherry	Prunus serotina	Good	957.6	Remove
628	18	Box Elder	Acer negundo	Good	957.6	Non-woodland	760	7	American Elm	Ulmus americana	Good	956.6	Save	879	23	Black Cherry	Prunus serotina	Good	958.5	Save	990	10	Black Cherry	Prunus serotina	Good	950.2	Save
629	18	Box Elder	Acer negundo	Good	957.6	Non-woodland	761	5.8, 8	Silver Maple	Acer saccharinum	Good	958.8	Save	880	23	Black Cherry	Prunus serotina	Good	958.9	Save	991	11	Box Elder	Acer negundo	Good	959.8	Remove
630	7	Box Elder	Acer negundo	Good	956.2	Save	762	15	Black Walnut	Juglans nigra	Good	960.4	Non-woodland	881	20	Black Cherry	Prunus serotina	Good	959.2	Save	992	9	Box Elder	Acer negundo	Good	955.7	Remove
631	dead						763	15	Black Walnut	Juglans nigra	Good	960.2	Non-woodland	882	17	Black Cherry	Prunus serotina	Good	959.4	Save	993	15	Sugar Maple	Acer saccharum	Good	957.8	Remove
632	9	Box Elder	Acer negundo	Good	955.6	Save	764	14	Black Walnut	Juglans nigra	Good	960.4	Non-woodland	883	18, 18	Black Cherry	Prunus serotina	Good	960.1	Save	994	8	Black Cherry	Prunus serotina	Good	957.9	Remove
633	10	Box Elder	Acer negundo	Good	955.6	Save	765	10	Box Elder	Acer negundo	Good	961.2	Non-woodland	884	14	Black Cherry	Prunus serotina	Good	960.1	Save	995	8	Black Cherry	Prunus serotina	Good	958.8	Remove
634	12	Box Elder	Acer negundo	Good	955.9	Save	766	12	Eastern Red Cedar	Juniperus virginiana	Good	960.4	Non-woodland	885	7	Common Pear	Pyrus communis	Good	960.1	Save	996	12	Black Cherry	Prunus serotina	Good	958.3	Remove
635	13	Box Elder	Acer negundo	Good	958.1	Save	767	7	Black Walnut	Juglans nigra	Good	955.1	Save	886	11	Black Cherry	Prunus serotina	Good	960.2	Save	997	8	Black Cherry	Prunus serotina	Good	957.1	Remove
636	11, 16	Box Elder	Acer negundo	Good	955.7	Non-woodland	768	9	American Elm	Ulmus americana	Good	960.0	Save	887	24	Black Cherry	Prunus serotina	Good	960.7	Save	998	8	Black Cherry	Prunus serotina	Good	960.2	Save
637	23	Eastern Cottonwood	Populus deltoides	Good	954.2	Non-woodland	769	7	American Elm	Ulmus americana	Good	960.0	Save	888	11	Black Cherry	Prunus serotina	Good	960.2	Save	999	7	American Elm	Ulmus americana	Good	959.0	Exempt- Remove
638	11	Eastern Cottonwood	Populus deltoides	Good	953.9	Non-woodland	770	6, 9	American Elm	Ulmus americana	Good	960.0	Save	889	11	Black Cherry	Prunus serotina	Good	960.3	Save	1000	8	Black Cherry	Prunus serotina	Good	959.0	Save
639	14	Box Elder	Acer negundo	Good	952.9	Non-woodland	771	7	Black Cherry	Prunus serotina	Good	960.0	Save	890	8	Black Cherry	Prunus serotina	Good	960.2	Save	1001	10	Black Cherry	Prunus serotina	Good	960.1	Save
640	17	Eastern Cottonwood	Populus deltoides	Good	953.0	Non-woodland	772	8	Box Elder	Acer negundo	Good	958.6	Save	891	9, 10	Black Cherry	Prunus serotina	Good	960.3	Save	1002	8	Box Elder	Acer negundo	Good	960.2	Save
641	13	Silver Maple	Acer saccharinum	Good	953.0	Non-woodland	773	7	Box Elder	Acer negundo	Good	958.6	Save	892	12	Black Cherry	Prunus serotina	Good	960.4	Save	1003	4, 4.8	Box Elder	Acer negundo	Good	956.6	Remove
642	3.5, 10	Silver Maple	Acer saccharinum	Good	952.4	Non-woodland	774	8	Box Elder	Acer negundo	Good	958.2	Save	893	26	Black Cherry	Prunus serotina	Good	960.4	Save	1004	10	Box Elder	Acer negundo	Good	957.9	Remove
643	10	Silver Maple	Acer saccharinum	Good	952.4	Non-woodland	775	8	Box Elder	Acer negundo	Good	957.4	Save	894	8	Sugar Maple	Acer saccharum	Good	960.2	Save	1005	7	Box Elder	Acer negundo	Good	956.8	Exempt- Remove
644	4.4, 5.6, 6.7, 14	Silver Maple	Acer saccharinum	Good	952.3	Non-woodland	776	10	Box Elder	Acer negundo	Good	957.4															