



CITY of NOVI CITY COUNCIL

Agenda Item F
January 23, 2012

SUBJECT: Approval of Resolution Number 2 for Special Assessment District 176 – Woodham Road Water Main Extension and setting the public hearing for February 21, 2012.

SUBMITTING DEPARTMENT: Department of Public Services, Engineering Division ^{BH} *BAC*

CITY MANAGER APPROVAL: *[Signature]*

BACKGROUND INFORMATION:

Property owners on Woodham Road approached the City with a petition requesting the formation of a special assessment district (SAD) to serve a portion of Echo Valley Estates Subdivision in Section 29 with public water. If established, the SAD project would extend a public water main approximately 525 feet south along the east side of Woodham Road to serve nine parcels that would receive a direct benefit (see attached map).

After receipt of the informal petition on May 16, 2011, City Engineering staff held a public information meeting for potential SAD participants on October 6, 2011 to explain the SAD process and possible costs of the water main extension. A formal petition, signed by eight of the nine property owners in the potential SAD, was submitted to the City Clerk on October 11, 2011. Therefore, more than 51% of the property owners in the parcel area who would receive a direct benefit have signed the petition. The attached October 25, 2011 memo from Brian Coburn provides additional background on the formation of the district.

Resolution Number 1, adopted by City Council on November 14, 2011, authorized the preparation of plans, specifications and cost estimates for the project. The attached plans and cost estimate have now been prepared by the selected consultant for this project, Spalding DeDecker. An informal public information meeting has been scheduled with the residents within the SAD for January 24, 2012, in advance of the proposed public hearing, so staff can present the plan and cost estimates and answer any questions that the residents may have regarding the project or the SAD process.

The enclosed Resolution Number 2 declares necessity for the project and the tentative intent to proceed with the project, and sets the date for the first public hearing on necessity, proposed for the February 21, 2012 City Council meeting.

If Resolution 2 is adopted, there would be three remaining resolutions in the SAD process before the project could be constructed. The attached document provides additional detail regarding the SAD process.

The City recoups its capital expenditures on SAD projects by collecting assessments from benefitting landowners, typically over a 20-year period for water main installation. For a project of this size, the time needed to complete an SAD project (i.e., from Resolution Number 1 adoption through construction completion) ranges from 6 months to a year. The estimated cost for the project is \$119,956, which equates to \$13,328.43 per parcel.

RECOMMENDED ACTION: Approval of Resolution Number 2 for Special Assessment District 176 – Woodham Road Water Main Extension and setting the public hearing for February 21, 2012.

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Fischer				

	1	2	Y	N
Council Member Margolis				
Council Member Mutch				
Council Member Wrobel				

STATE OF MICHIGAN
COUNTY OF OAKLAND
CITY OF NOVI

**WOODHAM ROAD WATER MAIN EXTENSION
WATER MAIN EXTENSION (SAD 176)**

**RESOLUTION DECLARING NECESSITY AND TENTATIVE INTENT TO PROCEED
WITH PROJECT AND SETTING PUBLIC HEARING**
(Resolution No. 2)

RECITATIONS:

The City has received a petition signed by what has been reported to be the record owners of more than fifty percent (50%) of the total land area in a proposed special assessment district for construction of the proposed improvement described below (the "**Project**").

Plans, specifications and cost estimates have been submitted to the City Council for construction of the Project, and the City is tentatively considering the establishment of a special assessment district to finance and defray the cost of the Project.

The proposed improvement (the "**Project**") is:

The construction of approximately 525 feet of 8" WATER MAIN and related facilities and improvements in Section 29 which will provide a direct benefit to nine parcels in Echo Valley Estates along a portion of Woodham Road.

The Project is designed and intended to especially benefit all of the properties in the proposed special assessment district by providing public water service to the residential properties to be assessed.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

1. The City Council determines that the Project is necessary and that it tentatively intends to proceed with the Project, and to establish a special assessment district to defray the entire (100%) cost of the Project.

2. A registered professional engineer has prepared plans describing the Project and a preliminary estimate of the cost of the Project in the amount of **\$119,956.00**. Such plans and cost estimate have been filed with the City Clerk.

3. The City Council tentatively designates all of the properties on the list attached to this Resolution as the special assessment district against which the cost of the Project is to be assessed and which shall be identified as Special Assessment District No. **176** (the "**District**").

4. The City Assessor has determined that the signatures contained in the Petition represent **88.3%** total land area within the District.

5. The Council recommends that the allocation of the costs of the project, based upon **SAD 176**, should be allocated on a per residential unit or equivalent basis.

6. The City Clerk shall give notice in the manner provided below that the City Council shall conduct a public hearing on **February 21, 2012**, at 7:00 P.M. at the City Hall, 45175 West Ten Mile Road, Novi, Michigan, for the purpose of hearing comments and objections to the proposed Project, and to the tentatively established District.

7. Notice of the public hearing shall be published once in a newspaper published or circulated in the City, and sent by certified mail, return receipt not requested, to the record owner or party in interest in whose name each property in the District is assessed as shown on the City's last preceding tax assessment roll for *ad valorem* tax purposes. The notice shall be published at least seven (7) full days prior to the date of the hearing and the notice of hearing shall be mailed

at least ten (10) days before the date of the hearing. The notice shall specify that appearance and protest at the hearing is required in order to appeal the matters to be considered at the hearing to the State Tax Tribunal and that an owner or party in interest or his or her agent may appear in person at the hearing to protest, or he or she may appear by filing his or her appearance or protest by letter, which shall then not require his or her personal appearance. The notice shall further specify the preliminary cost estimate for the Project, and include a card to be completed by the owner or party in interest and returned to the City Clerk's office, indicating whether the owner or party in interest supports or disapproves of the project and special assessment district.

8. The Clerk shall retain a copy of the file in the Clerk's office for examination.

AYES:

NAYS:

ABSTENTIONS:

ABSENT:

CERTIFICATION

It is hereby certified that the foregoing Resolution is a true and accurate copy of the Resolution adopted by the City Council of the City of Novi at a meeting duly called and held on the _____ day of _____, 20__.

CITY OF NOVI

By: _____
MARYANNE CORNELIUS, CITY CLERK

CITY OF NOVI
WOODHAM ROAD WATER MAIN EXTENSION
SPECIAL ASSESSMENT DISTRICT NO. 176

PUBLIC HEARING NOTICE

Date: FEBRUARY 21, 2012

Time: 7:00 p.m.

In the Council Chambers at the Novi City Hall
45175 West Ten Mile Road
Novi, Michigan

PLEASE TAKE NOTICE that the Novi City Council is considering the public improvement described below, to be financed by the establishment of a special assessment district. Subject to receiving comments and objections at public hearing, the Council has determined to proceed with the improvement. On February 21, 2012 at 7:00 p.m. in the Council Chambers at the Novi City Hall, 45175 West Ten Mile Road, Novi, Michigan, the City Council shall meet for the purpose of hearing comments and objections from interested persons regarding the proposed special assessment district known as Woodham Road Water Main Extension, Special Assessment District No. 176, including comments and objections to the proposed project and to the proposed special assessment district consisting of the properties anticipated to be specially benefited by, and assessed for, the improvement.

The proposed improvement (“The Project”) is:

The construction of approximately 525 feet of 8-inch WATER MAIN and related facilities and improvements in Section 29 which will provide a direct benefit to nine parcels along a portion of Woodham Road.

The estimated cost for the Project is \$119,956.00.

A copy of the Petition, and the plans and cost estimate for the proposed Project are on file at the City Clerk's Offices, 45175 West Ten Mile Road, Novi, Michigan, for public examination during normal business hours.

Accompanying this Notice is a form for you to complete and return to the City Clerk's office, indicating whether you as a property owner within the proposed special assessment district support or disapprove of the proposed public improvement and special assessment district.

Appearance and protest at the hearing is required in order to appeal the matters to be considered at the hearing to the State Tax Tribunal. An owner or party in interest, or his or her agent, may appear in person at the hearing to protest the special assessment, or shall be permitted to

file his or her appearance or protest by letter at or before the hearing and his or her personal appearance in such case shall not be required.

MARYANNE CORNELIUS CLERK
CITY OF NOVI

DATED: _____

560221_1



January 11, 2012

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Terry K. Margolis

Andrew Mutch

Justin Fischer

Wayne Wrobel

Laura Marie Casey

City Manager
Clay J. Pearson

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

Re: Notice of Public Information Meeting
Special Assessment District 176
Woodham Road Water Main Extension

Dear Resident:

A Public Information Meeting for the above referenced project has been scheduled for Tuesday, January 24th at 6:00 p.m. in the Police Training Center at the Novi Police Station, 45125 W. Ten Mile Road. The purpose of this informal meeting is to allow residents within the proposed Special Assessment District (SAD) to ask questions regarding the design, cost, timeline and the overall SAD process.

The SAD process officially began with City Council's approval of Resolution #1 on November 14, 2011. Resolution #2 will be considered by City Council on January 23, 2012, at which time a date for the first of two public hearings would be set (anticipated to be February 21st).

Attached please find the revised project cost estimate, the preliminary engineering plans (considered 50% complete), a map showing the proposed special assessment district boundaries, and brochure describing the SAD process. These items will be addressed in further detail by City staff at the meeting.

In the meantime, please feel free to contact our office at 248-347-0454 for further information.

Sincerely,

ENGINEERING DIVISION

Benjamin Croy, PE
Civil Engineer

Enclosures

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

cityofnovi.org

**PRELIMINARY PROJECT COST ESTIMATE
POTENTIAL WATER MAIN SAD
WOODHAM ROAD**

January 2012

<u>TYPES OF COSTS</u>	<u>ESTIMATED COSTS</u>
A. Water Main Project Construction Costs (must be paid regardless)	
1. SAD related project cost (preliminary estimate)	\$119,955.85
2. Estimated number of benefitting properties	9
3. Estimated per property cost (preliminary estimate) (To be paid over 20 years)	\$13,328.43
B. Fixed Connection Costs (paid at time of water connection)	
1. Connection Charge	\$1,850.00
2. Meter Charge (5/8" Meter)	\$276.00
C. Other Water Related Costs (to be determined by homeowner)	
1. Plumbing Costs	?
2. Service line from property line to home	?
3. Any plumbing changes in the home	?
4. Retiring the well (optional, may be used for irrigation)	?

Note: The installation cost of the water service lead to the property line is included in the SAD Construction Cost. The homeowner is responsible for hiring a contractor to extend the service from the property line to the home. These costs vary depending on the location of the existing well and the amount of plumbing changes required to accommodate the new service.

D. City of Novi Water and Sewer Charges (effective 8/2/11)

The City of Novi bills quarterly for water and sewer charges. The water charges depend on the size of the meter connection to your property. Most single family residential homes have a 5/8-inch meter.

- | | |
|-------------------------------|---------|
| 1. Water Charges (5/8" meter) | |
| a. Flat fee per quarter | \$35.00 |
| b. Cost per 1,000 gallons | \$3.31 |

Note: The average family home without lawn sprinklers uses approximately 15,000-27,000 gallons of water per quarter. Your particular home may use more or less water.

NOTE: The figures presented above are preliminary estimates based on a preliminary design of the project. These figures are being presented for informational purposes only and are subject to change. Once a final design is completed for the project, more accurate costs will be developed, however actual costs will not be known until bids are received from contractors. The fees presented here are per current City Ordinances and are subject to change.

**Project Cost Estimate
Woodham Road 2011 Water Main SAD
Section 29**

I.	Total Estimated Construction Costs		
	A. Construction Costs (Preliminary Estimate)	\$	84,938.95
	B. Construction Contingency (Approx. 10%)	\$	8,493.90
	Total Estimated Construction Cost	\$	93,432.85
III.	Consultant Engineering Services		
	A. Final Design (Actual)	\$	9,023.00
	B. Construction Administration Services	\$	17,500.00
	Total Engineering Services	\$	26,523.00
IV.	Right-of-way and Easement Property Acquisition		NA
V.	Tree Replacement Costs		NA
VI.	Bid Advertisement, Legal, and Administrative (~2% of Const Cost)	\$	-
VII.	Bond Closing Costs (5% of Total Const. & Engr. Cost)		NA
	TOTAL ESTIMATED PROJECT COST:	\$	119,955.85

<i>Estimated Number of Units in Proposed District:</i>	9
<i>Estimated Cost per Unit:</i>	\$ 13,328.43

10/25/2011

To: Mayor and City
Council members
FYI; SAD consideration moving forward.
Clay



MEMORANDUM

TO: ROB HAYES, P.E.; DIRECTOR OF PUBLIC SERVICES
FROM: BRIAN COBURN, P.E.; ENGINEERING MANAGER *BIC*
SUBJECT: PROPOSED SPECIAL ASSESSMENT DISTRICT 176
WOODHAM DRIVE WATER MAIN EXTENSION
DATE: OCTOBER 25, 2011

The enclosed formal petition to create a special assessment district (SAD) for the construction of water main along Woodham Drive in Echo Valley Subdivision has been received. The petition is signed by eight of the nine property owners in the proposed district. This SAD would connect to the water main that was previously constructed on Woodham Drive under SAD 171 and extend the water main approximately 500 feet. The project costs are currently estimated to be \$12,300 plus interest per parcel, which would typically be financed over 20 years.

Staff has been working with the residents on Woodham since earlier this summer when an informal petition was received. A preliminary cost estimate was developed and presented to the property owners on October 6, 2011 at a public information meeting. The formal petitions were provided to the residents at that meeting and were returned with signatures to the City Clerk on October 11.

The enclosed page from the City's website provides additional detail regarding the SAD process. The first step following receipt of the formal petition is to present Resolution 1 for City Council consideration. Resolution 1 would authorize staff to hire a consultant and develop design plans and specifications for the project.

We plan to prepare Resolution 1 for consideration by City Council at an upcoming meeting.

cc: Kathy Smith-Roy, Finance Director
Victor Cardenas, Assistant City Manager

**PETITION FOR SPECIAL ASSESSMENT DISTRICT
WATER IMPROVEMENTS**

TO: The City Council of the City of Novi

We, the undersigned, owners of property in Echo Valley Estates, Section 29, of the City of Novi, do hereby petition the Novi City Council to hold a Public Hearing on the necessity of establishing a Special Assessment District relative to installing a water line and all necessary appurtenances within Echo Valley Estates to service the aforementioned properties, and to make the necessary arrangements to create a Special Assessment District for the purpose of paying the cost of such public improvement.

SIGNATURE OF OWNERS	SIDWELL NUMBER	ADDRESS	DATE SIGNED
1. <i>Charles P. ...</i>		24039 WOODHAM	10/6/11
<i>[Signature]</i>		24040 Woodham	10/6/11
3. <i>George A. Rini</i>		23953 Woodham	10/6/11
4. <i>Bob G. ...</i>		24015 WOODHAM	10/6/11
5. <i>Elizabeth ...</i>		23971 WOODHAM	10/6/11
<i>Diane ...</i>		23970 WOODHAM	10/9/11
<i>[Signature]</i>		23968 WOODHAM	10/10/11
8. <i>Robert Taker</i>		23931 WOODHAM	10/10/11
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			

CITY OF NOVI
CITY CLERK'S OFFICE
OCT 11 A 9:20

STATE OF MICHIGAN)
COUNTY OF OAKLAND)

The undersigned, being first duly sworn upon his oath deposes and states that ^ is the owner of real property located in the proposed District, that each signature to the above and foregoing petition is the genuine signature of the person signing same; and that to his best knowledge and belief each person signing said petition was, at the time of signing, an owner of real property located in the proposed district in the City of Novi, County of Oakland, State of Michigan.

property owners

George A. Rini
ADDRESS: 23953 WOODHAM - NOVI

Subscribed and sworn to before me on this 11th day of October 2011

Natalie Laitinen
Notary Public
Oakland County, MI

NATALIE LAITINEN
NOTARY PUBLIC, STATE OF MI
COUNTY OF OAKLAND
MY COMMISSION EXPIRES Dec 14, 2012
ACTING IN COUNTY OF Oakland

My Commission Expires 12-14-12

Proposed Special Assessment District

Woodham Road Water Main Extension
SAD 176



Map Author: Croy
Date: 8/29/11
Project: Potential Woodham SAD
Version #: V1.1



1 inch = 182 feet



City of Novi
Engineering Division
Department of Public Services
26300 Delwal Drive
Novi, MI 48375
cityofnovi.org

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any 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.

[Government](#)[Community](#)[City Services](#)[Reference](#)[Agendas & Minutes](#)[How Do I](#)[Stay Connected](#)

Special Assessment District Update

In February 2003, the Novi City Council adopted "Review the SAD Process" as one of its goals. The new procedure detailed here is the result of ordinance review and comparison studies of similar communities. It is believed that this new SAD Ordinance, adopted October 6, 2003, will reduce the process by four months.

What is a Special Assessment?

A Special Assessment can be made for any public improvement within Novi, which is of such a nature as to directly benefit any property within a defined area.

What types of improvements are financed by Special Assessment?

The most common types of improvements that are financed through the SAD process include:

- Road improvements
- Sanitary sewers
- Water mains
- Storm sewers
- Street lighting
- Sidewalks

How does the process begin?

The SAD process is initiated by either a resident Request for Information Petition or Resolution by the City Council.

If the process is begun through the new Request for Information Petition, it must be signed by 30 percent of the total units of benefit in the district. Then, a public informational meeting is held regarding the SAD process, preliminary design and cost estimates for the project, and timeframe for the process. The City of Novi's Engineering Division does preliminary engineering for the public informational meeting.

Residents then have 60 days following the public information meeting in which to submit a formal Petition to Start a Special Assessment District, which must be signed by 51 percent of the total units of benefit (per tap unit, front foot, etc.) in the proposed district. District boundaries may change between the public information meeting and the submission of the Petition to Start a Special Assessment District. This petition initiates the formal SAD process.

What is a unit of benefit?

A unit of benefit is determined by the City of Novi on a basis appropriate to the improvement.

Who oversees the bid process?

The City of Novi's Engineering Division facilitates the bid process and oversees construction of projects.

Once the process is started, can it be stopped?

City Council views this process as a partnership between the City and the residents. The ordinance does state that property owners can request to stop the process at any time until the City Council adopts Resolution #5; however, since the City incurs significant planning and design expenses at the onset of the process, the City Council has the right to approve or deny such request.

How many years can the SAD payments be spread over and what is the payment schedule?

The amount of years varies by type of project, however the term is normally less than the life expectancy of the improvement (not to exceed 15 years for roads and 20 years for all other utilities).

The first installment is due upon confirmation of the SAD roll before construction begins, OR on such date as the City Council may determine. Subsequent installments are billed with the summer property tax bill.

What is the interest rate?

The interest rate reflects current market conditions and is not to exceed eight percent. The rate is established by the City Council. Interest is calculated on the unpaid balance. If the assessment is prepaid prior to the commencement of interest date, there is no interest charge.

If I move or sell my property, am I still responsible for the loan?

Once the SAD roll is confirmed the City places a lien on the properties and assumes the position of first lien holder. The City does not require that the assessment be paid off during a real estate transfer; however, individuals should consult with a title company to verify requirements.

Is there a procedure that would provide relief for property owners with a demonstrated financial hardship?

With the approval of the City Council and the City Assessor, a Special Assessment may be deferred by the reason of poverty per "Federal guidelines" for a specific property. The lien is placed on the property and all payments are deferred until the property is transferred. However, interest accrues on the unpaid balance.

SAD Process**Resolution # 1**

City Council makes three tentative determinations: the necessity of the improvement; the conclusion on whether to proceed with the improvement; and, the establishment of a proposed district of properties that will be specially benefited by the improvement (the proposed "special assessment district"). Once such determinations are made, the Council directs the City Manager to have plans and a cost estimate prepared for the improvement.

Resolution # 2

City Council confirms the tentative necessity of the improvement, sets a public hearing date on the issues to be considered for Resolution # 3, and directs the City Clerk to provide notice of the public hearing as provided in the City Code.

First Public Hearing is held to allow the Council to hear comments and objections on the proposed improvement and on the proposed special assessment district.

Resolution # 3

Following the public hearing, City Council again determines whether to proceed with the improvement, and, if so, this resolution approves the preliminary plans and cost estimate, designates the special assessment district, and directs the City Assessor to prepare a proposed special assessment roll, reflecting the total cost of designing, financing and constructing the improvement and the amount each property in the special assessment district will have to pay.

Resolution # 4

City Council receives the proposed special assessment roll prepared by the City Assessor, sets a date for a public hearing on the proposed assessment roll, and directs the City Clerk to provide notice of the public hearing as provided in the City Code.

Second Public Hearing is held to allow the Council to hear comments and objections on the proposed special assessment roll.

Resolution # 5

Following the public hearing, City Council makes the final determination on proceeding with the improvement, and confirms the special assessment roll, either as presented or as modified based upon comments and objections received at the public hearing.

The approved improvement is then pursued, and properties are assessed in accordance with Resolution # 5.

For more information

Brian Coburn, Engineer
45175 W. Ten Mile Road
Novi, MI 48375

248-347-0454
[Email](#)



Engineering Consultants
Infrastructure • Land Development • Surveying

903 South Blvd, East
Bloomington, IN 47403
Phone: (317) 844-3400
Fax: (317) 844-5404

1425 Randolph, Suite 404
Dwight, IN 46038
Phone: (317) 967-4700
Fax: (317) 967-4707

107 South Main Street
Bloomington, IN 47403
Phone: (317) 844-3111
Fax: (317) 844-3112

www.sda-eng.com
(800) 598-1600

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CITY OF NOVI
SPECIAL ASSESSMENT
DISTRICT 176
WOODHAM ROAD WATER MAIN

WATER MAIN
PLAN AND PROFILE

SECTION 03
TWO (2) MAINS RANGE E EAST
CITY OF NOVI

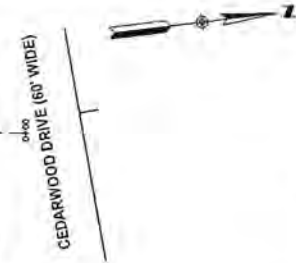
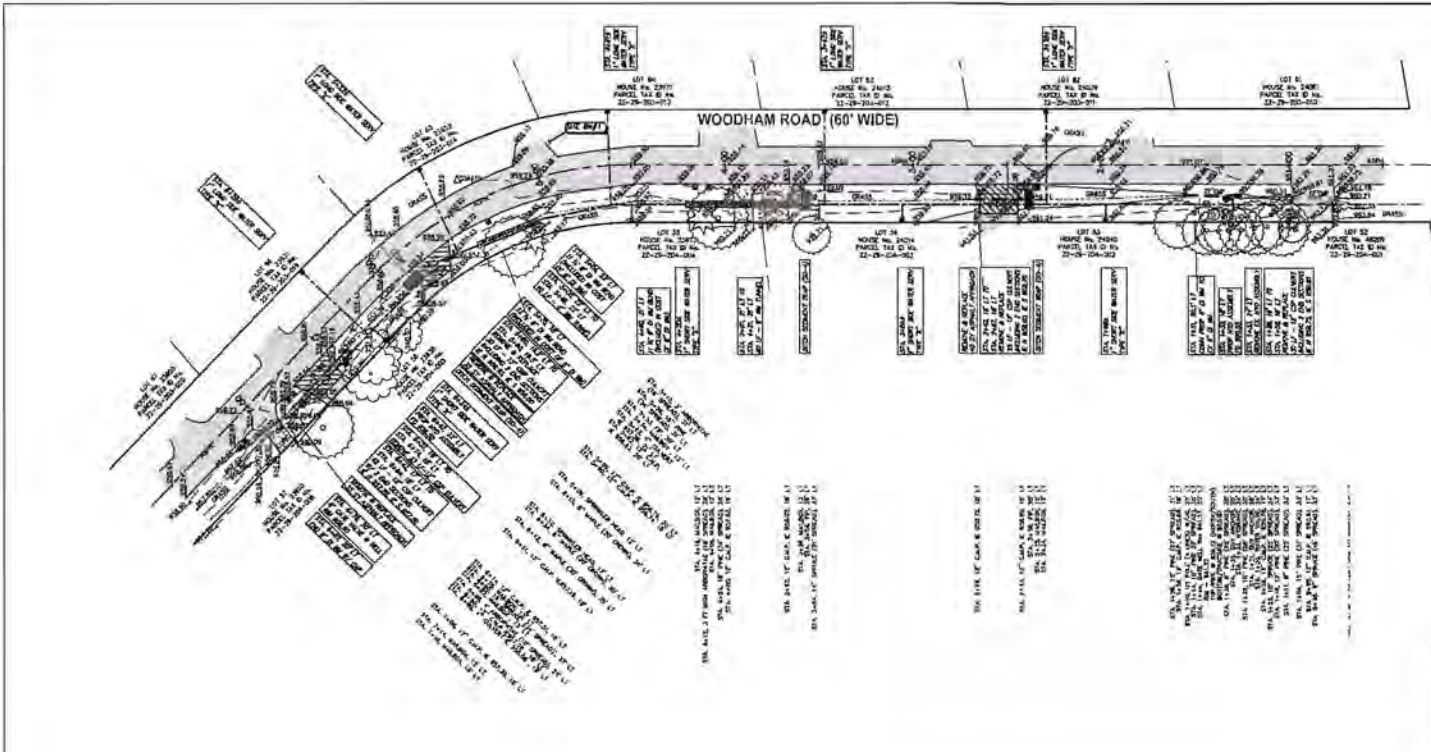
NO.	DATE	REVISION
1	01/18/12	ISSUED FOR CITY REVIEW

DESIGNER	DATE	BY
T. LADDON	01-04-12	T. LADDON
T. LADDON	01-04-12	T. LADDON
PROJECT MANAGER		NO PLAN DATE
M. STODOL		
APPROVED MANAGER		

NOVI IS THE OWNER OF THIS PROJECT.
IF NOT THE OWNER OF THIS PROJECT,
PLEASE CONTACT THE OWNER.

NOVI-025 NY1100501

NOVI-025 NY1100501
NOVI-025 NY1100501

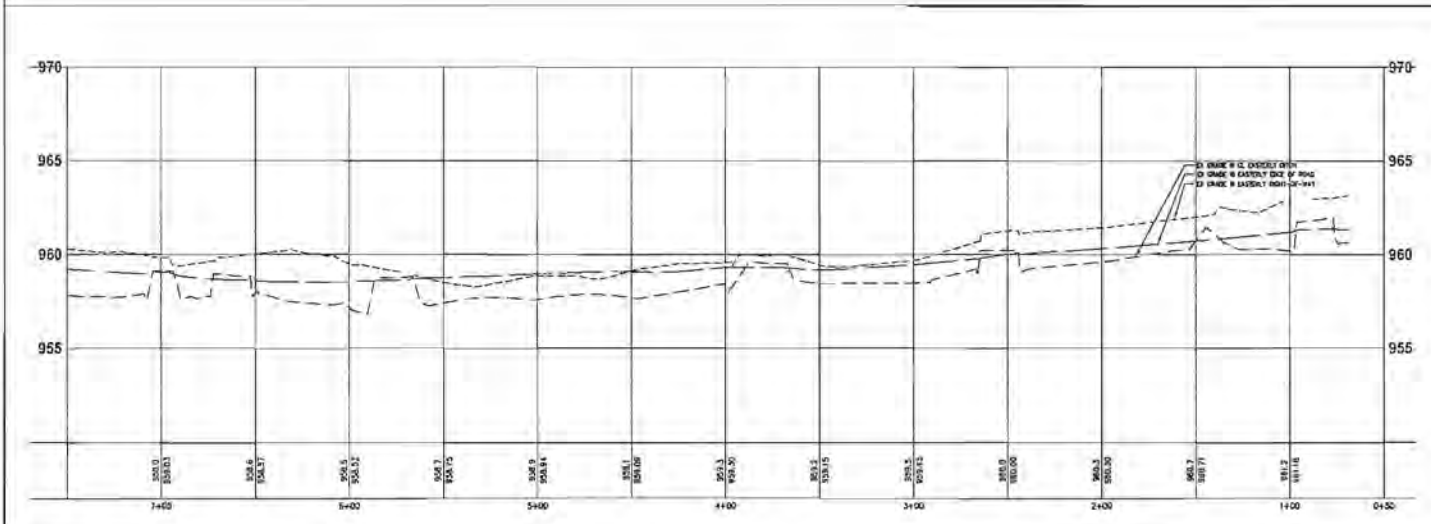


1" HORIZONTAL SCALE
1" VERTICAL SCALE
AS SHOWN TO
RESPECTIVE STATIONING
APPROACH AND PAVING LOTS
PAVEMENT THICKNESSES
AT DRIVEWAY OPENINGS
NO SCALE

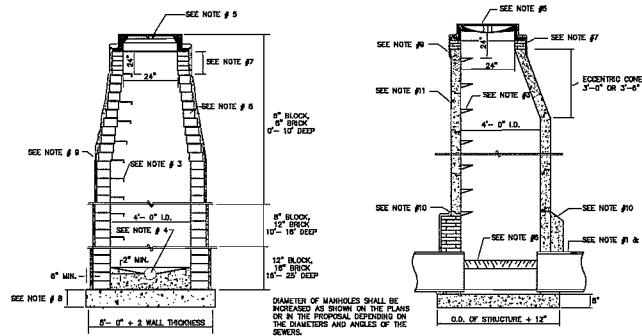
BENCHMARK DESCRIPTIONS

BENCH 1	TOP OF 12" DIA. CONCRETE PIPER POST	1254.152+84
BENCH 2	TOP OF 12" DIA. CONCRETE PIPER POST	1254.152+84

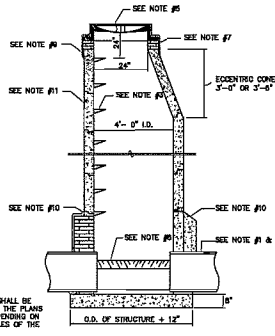
- NOTES**
- CONTRACTOR TO VERIFY ALL EXISTING UTILITIES TO BE MAINTAINED.
 - CONTRACTOR TO VERIFY ALL EXISTING UTILITIES TO BE MAINTAINED BEFORE COMMENCING ANY WORK.
 - CONTRACTOR TO VERIFY ALL EXISTING UTILITIES TO BE MAINTAINED BEFORE COMMENCING ANY WORK.



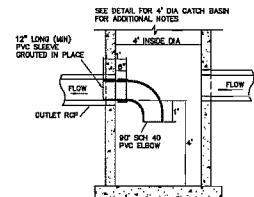
NOVI-025 NY1100501



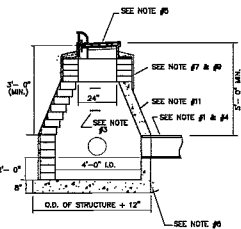
STANDARD MANHOLE BRICK OR BLOCK FOR PIPES 36" & SMALLER
SEE NOTE #12



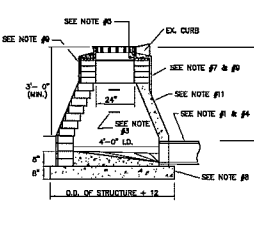
STANDARD MANHOLE PRECAST FOR PIPES 36" & SMALLER
SEE NOTE #12



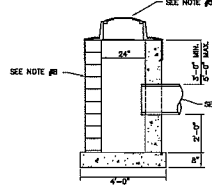
OIL/GAS SEPARATOR FOR OUTLET PIPE DIAMETERS SMALLER THAN 18"
SEE NOTE #12



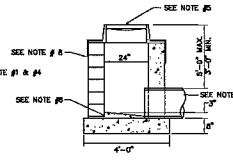
4" DIA. BRICK OR PRECAST CATCH BASIN
SEE NOTE #12



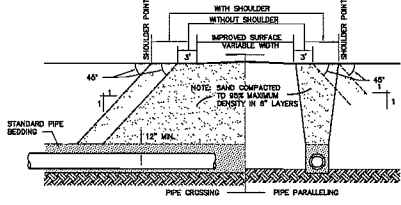
4" DIA. BRICK OR PRECAST INLET
SEE NOTE #12



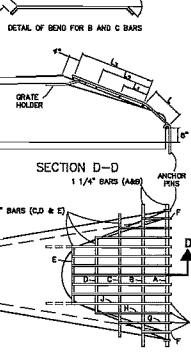
2" DIAMETER YARD BASIN & CATCH BASIN
SEE NOTE #12



2" DIAMETER INLET
SEE NOTE #12

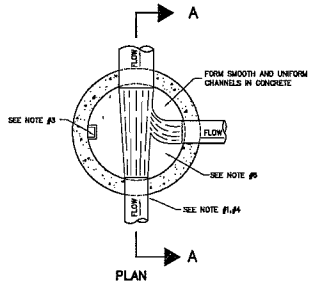


BACKFILLING IN THE AREAS OF STREETS, ALLEYS, SIDEWALKS, DRIVES & PARKING AREA
SEE NOTE #2

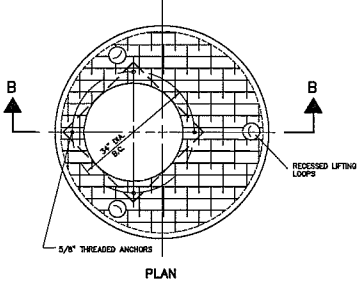


STEEL GRATE FOR PRECAST CONCRETE END SECTION

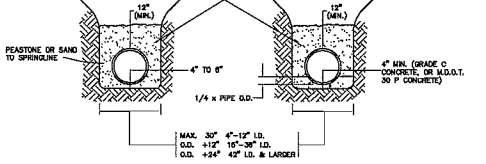
END SEC DIA.	18"	18"	18"	24"	24"	24"	30"	30"
L	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₃	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₄	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₅	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₆	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₇	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₈	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₉	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₀	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₁	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₂	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₃	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₄	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₅	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₆	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₇	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₈	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₁₉	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₀	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₁	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₂	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₃	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₄	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₅	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₆	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₇	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₈	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₂₉	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
L ₃₀	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1



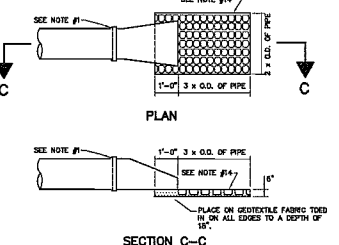
SECTION A-A CHANNEL DETAIL



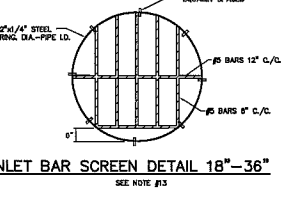
SECTION B-B FLAT SLAB MANHOLE TOP



CLASS "B" BEDDING BEDDING & TRENCH WIDTH REQUIREMENT



SECTION C-C GROUDED RIP-RAP



M.C. GRADE	M.C. GRADE	M.C. GRADE	M.C. GRADE	M.C. GRADE	M.C. GRADE	M.C. GRADE	M.C. GRADE
40 S	5.03	BA	1A1S-A	611	6.5	82	1 4000
35 S	8.09	BAA	1A	564	6.0	82	1 3500
30 P	8.17	BA	1A1S-A	517	5.5	82	1 3000
30 M	5.14	BA	1A1S-A	517	5.5	82	1 3000
	8.11						
	8.11						
	6.12						

CONCRETE MIXTURES

- "STORM SEWER CONSTRUCTION NOTES"**
- PIPE TYPES AND JOINTS**
 - REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM C-76. JOINTS SHALL CONFORM TO ASTM C-443.
 - ALL CATCH BASIN LINES AND INLET LINES SHALL CONFORM TO ASTM C-76 AND SHALL BE OF CLASS II CONCRETE PIPE.
 - FOR BUMP MARKS AND LEADS (A HEAVY WALL SCHEDULE 40 (CONFORM TO ASTM D3054) FRAMING JOINTS PVC ANCHORS THIS PIPE OR COMPENSATED BY IN SMOOTH MATERIALS MEETING THE REQUIREMENTS OF ASTM D1682 AND COMPACTED. BE PLACED IN CLASS II BEDDING (OR APPROVED EQUIVALENT).
 - THE JOINTS OF PIPE SIZES OVER 27" DIAMETER SHALL BE POINTED UP WITH MORTAR UPON COMPLETION OF BACKFILLING OPERATIONS.
 - PIPE BEDDING AND BACKFILLING**
 - BEDDING SHALL BE OF CLASS "B" MATERIAL UNLESS OTHERWISE NOTED ON CONSTRUCTION DRAWINGS AND SHALL BE A MINIMUM OF 4" BELOW PIPE TO CENTERLINE OF THE PIPE. BEDDING SHALL BE UNIFORM IN GRADE.
 - BACKFILL SHALL BE OF CLASS "B" MATERIAL COMPACTED TO 95% OF MAXIMUM DRY DENSITY IN 8" LAYERS. TRENCH BACKFILL SHALL BE OF A SUITABLE MATERIAL AND SHALL BE FREE OF ANY ORGANIC MATERIALS AND LARGE ROCKS. BACKFILL SHALL BE RAISED INTO TRENCHES AND COMPACTED WITH A SMALL COURSE OR OTHER APPROVED METHODS WHERE TRENCH IS WITHIN 3' OF STREET ALLEYS. SIDEWALKS, DRIVEWAYS AND PARKING AREAS. BACKFILL SHALL BE GRANULAR MATERIAL, MOST CLASS I COMPACTED IN 8" LAYERS TO A DENSITY OF 95% AS DETERMINED BY ASTM D1557. ALL BACKFILL PLACED WITHIN 3' OF STRUCTURES SHALL BE GRANULAR SAND, PLACED IN 8" LAYERS AND COMPACTED. NO TRENCH MATERIAL SHALL BE BURIED MORE THAN 4' BELOW THE FINISH ELEVATION OF THE GRADE.
 - TRENCHES WHICH ARE TO BE LEFT OPEN OVERNIGHT SHALL BE ENCLOSED WITH SUITABLE FENCING AND LIGHTED BARRICADES, UNLESS OTHERWISE APPROVED BY MUNICIPAL ENGINEER.
 - TRENCH COMPACTOR REQUIREMENTS FOR PVC CORRUGATED WITH SMOOTH INTERIOR (ASTM F-840) ARE PER MANUFACTURER'S SPECIFICATIONS AND MUST BE ADHERED TO.
 - MANHOLE STEPS SHALL BE STEEL, ENCASED WITH POLYPROPYLENE PLASTIC OR APPROVED EQUIVALENT TO NALCO INDUSTRIES, INC. (PS-1) FOR 18" OR PS-18 FOR 24" OR EAST JORDAN IRON WORKS 8000 (OR APPROVED EQUAL).**
 - CATCH BASIN AND INLET STEPS SHALL BE EQUAL TO EAST JORDAN IRON WORKS 8000 PLASTIC COATED (OR APPROVED EQUAL).**
 - PIPE SHALL BE FLUSH WITH THE INSIDE WALL OF STRUCTURE AND NOT TO EXCEED 1/4" ABOVE THE STRUCTURE. PIPE SHALL BE FINISHED WITH A SMOOTH SURFACE.**
 - MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS 1040, TYPE "C" COVER OR AS PER CONSTRUCTION DRAWINGS.**
 - CATCH BASIN AND INLET FRAME AND COVER SHALL BE:

 - EAST JORDAN IRON WORKS 7000 "C" COVER WITH STRAIGHT FACE AND OUTER (OR AS APPROVED EQUAL).
 - EAST JORDAN IRON WORKS 7000 "C" COVER WITH MOUNTABLE CURB AND OUTER AND INTERNAL CURB AND OUTER (OR AS APPROVED EQUAL).
 - EAST JORDAN IRON WORKS 1040, TYPE "C" COVER FOR 4" DIA. STRUCTURES AND EAST JORDAN IRON WORKS 1040, TYPE "D" COVER FOR 2" DIA. STRUCTURES TO BE USED ON OPEN DITCHES AND CHANNELS, REAR YARD CATCH BASINS (OR APPROVED EQUAL).
 - EAST JORDAN IRON WORKS 1030, TYPE "A" COVER TO BE USED ON ALL 2" DIA. CLEANOUT (OR APPROVED EQUAL).
 - COVERS FOR THE 2" DIA. SUMP PUMP CLEAN-OUT LINES SHALL BE EAST JORDAN IRON WORKS 1030 OR 1010, TYPE A COVER (OR APPROVED EQUAL).**
 - FRAMES SHALL BE SET IN FULL BED OF MORTAR AND THE SKE SHALL BE OVERLAPPED TO PREVENT LEAKAGE.**
 - A PROPER CHANNEL SHALL BE CONSTRUCTED WITHIN THE EXISTING MANHOLE OR OTHER STRUCTURE AT WHICH THE CONNECTION IS TO BE MADE TO DIRECT THE FLOW TO THE EXISTING OUTLET IN A MANNER WHICH WILL TEND TO CREATE THE LEAST AMOUNT OF TURBULENCE. THIS CHANNEL SHALL BE CONSTRUCTED TO THE SAME SIZE AS THE INSIDE DIAMETER OF THE EXISTING PIPES, AND SHALL BE BUILT TO HEED OR 1/2" THE EXISTING PIPE DIAMETER WITH A MINIMUM OF 2% SLOPE ON THE SIDES.**
 - STANDARD BRICK ADJUSTMENT: MINIMUM - 6", MAXIMUM - 18"**
 - A BLOCK USED FOR STANDARD CATCH BASIN, INLET, AND MANHOLE SHALL BE 8" AND BRICK SHALL BE 8", OR AS PER CONSTRUCTION DRAWINGS.**
 - BRICK SHALL BE GRADE U-1 CONFORMING TO ASTM C-90.**
 - PRECAST REINFORCED CONCRETE SECTION AS MINIMUM CONFORM TO ASTM C-78.**
 - CONCRETE BASE FOR MANHOLE, CATCH BASIN, AND INLET SHALL BE M.I.D.T. GRADE 308 (MIN. 4" THICK, 3000 P.S.I.).**
 - PLASTER ALL OUTSIDE MASONRY SURFACES WITH 1:2 1/2 MASONRY CEMENT (TYPE "S") 1/2" THICK.**
 - WHEN TAPPING INTO AN EXISTING STRUCTURE A BRICK COLLAR SHALL BE PLACED 12" THICK AROUND THE PIPE AND EXTENDED 12" BEYOND SPRING.**
 - ALL PRECAST (BLOCKS) SHALL BE PLACED IN A FULL BED OF MORTAR. ALL JOINTS SHALL BE POINTED UP WITH MORTAR ON THE OUTSIDE AND INSIDE.**
 - ALL STRUCTURES SHALL BE 4" IN DIAMETER UNLESS INDICATED ON CONSTRUCTION DRAWINGS. 2" DIAMETER CATCH BASIN AND INLET SHALL BE USED WHEN INDICATED ON CONSTRUCTION DRAWINGS.**
 - A PERMANENT 4" DEEP SUMP IS REQUIRED FOR THE LAST STORM WATER STRUCTURE THAT IS MAINTAINANCE ACCESSIBLE PRIOR TO RELEASE OFF-SITE TO A SEDIMENTATION OR STORM WATER HOLDING BASIN.**
 - 4" DIA MANHOLES SHALL BE CONSTRUCTED WITH OIL AND GAS SEPARATORS AT THE LAST STRUCTURE PRIOR TO DISCHARGE INTO A DISTRIBUTION BASIN OR OPEN DRAINAGE COURSE AS DIRECTED BY THE MUNICIPAL ENGINEER.**
 - INLET BAR SCREENS

 - ALL BARS SHALL BE WELDED TO THE RING AND TO THE HORIZONTAL BAR.
 - THE BAR SCREEN SHALL BE GALVANIZED.**
 - SOIL CONDITION TREATMENT SHALL INCLUDE FIELD STONE OR BROKEN CONCRETE OF 4" MINIMUM THICKNESS AND A SQUARE FOOT PER SQUARE FOOT AREA AND SHALL BE MORTARED TO FORM A MONOLITHIC SLAB WITH A MINIMUM THICKNESS OF 8" AND SHALL BE PLACED ON GEOTEXTILE FABRIC.**



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**CITY OF NOVI
SPECIAL ASSESSMENT
DISTRICT 176
WOODHAM ROAD WATER MAIN
EXHIBIT**

SECTION 20
FORM 1 NORTH RANGE 6 EAST
CITY OF NOVI
OAKLAND COUNTY

NO.	DATE	REVISION
1	01/10/12	ISSUED FOR CITY REVIEW

DATE	01-18-12
T. LINDOW	01-18-12
E. LINDOW	01-18-12
CHECKED	DATE
PROJECT MANAGER	BY POINT DATE
APPROVED	DATE

DATE IS ONE YEAR ON ORIGINAL DRAWING
IF NOT ONE YEAR ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

DATE: NV11-005 NV1005+H/S/12
SCALE: 1" = 30' SHEET NO: 1 OF 1