



CITY OF ANN ARBOR ENGINEERING

FIRST SISTER LAKE STORMWATER RETROFIT

PARKLAKE AVENUE
CITY OF ANN ARBOR
WASHTENAW COUNTY, MICHIGAN

BID No. 4517, FILE No. 2016-033

NOTES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.



REV.	FOR BID	DESCRIPTION	DATE	AK	ABPJ	CHECKED
1			11-10-2017			

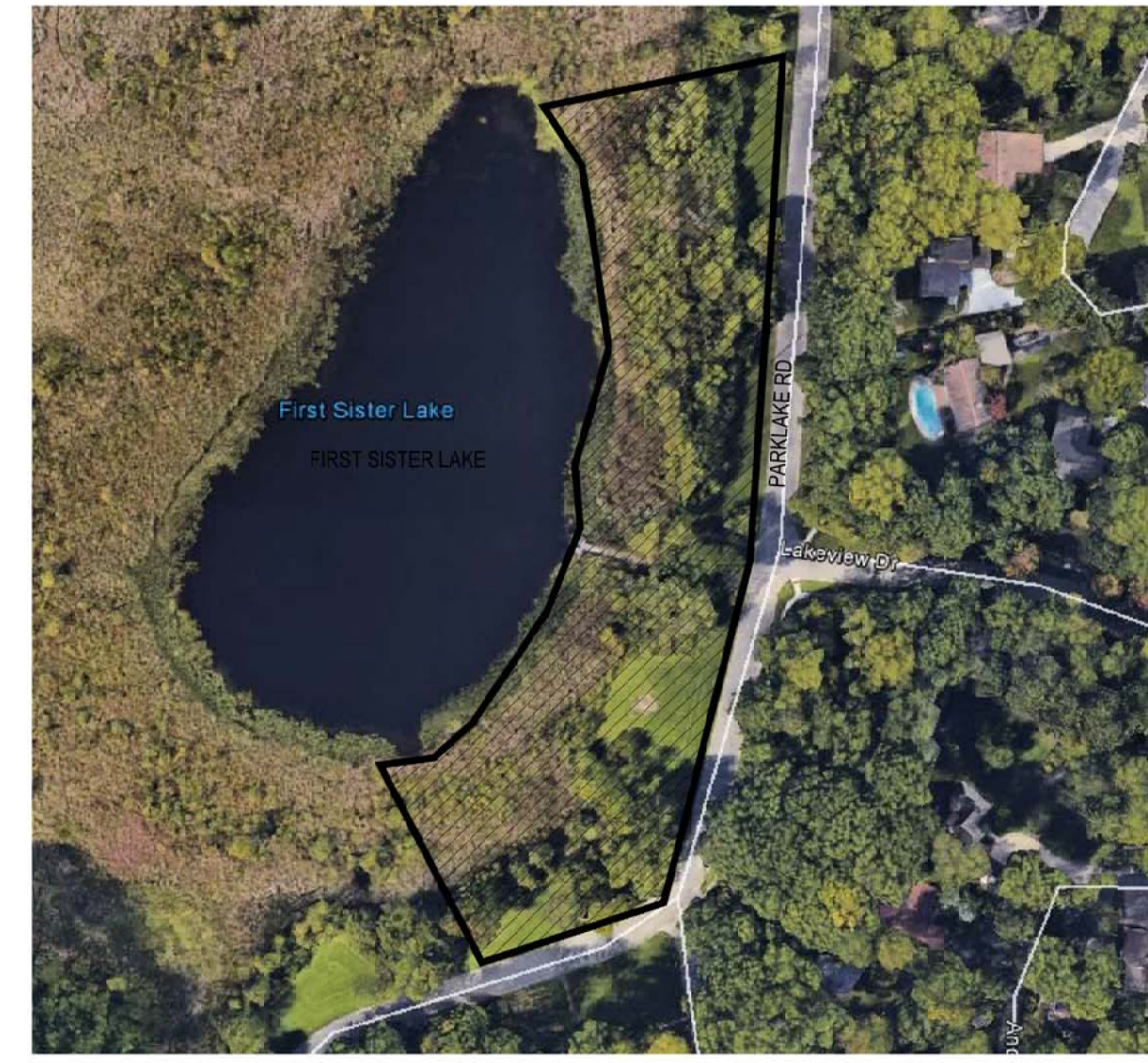
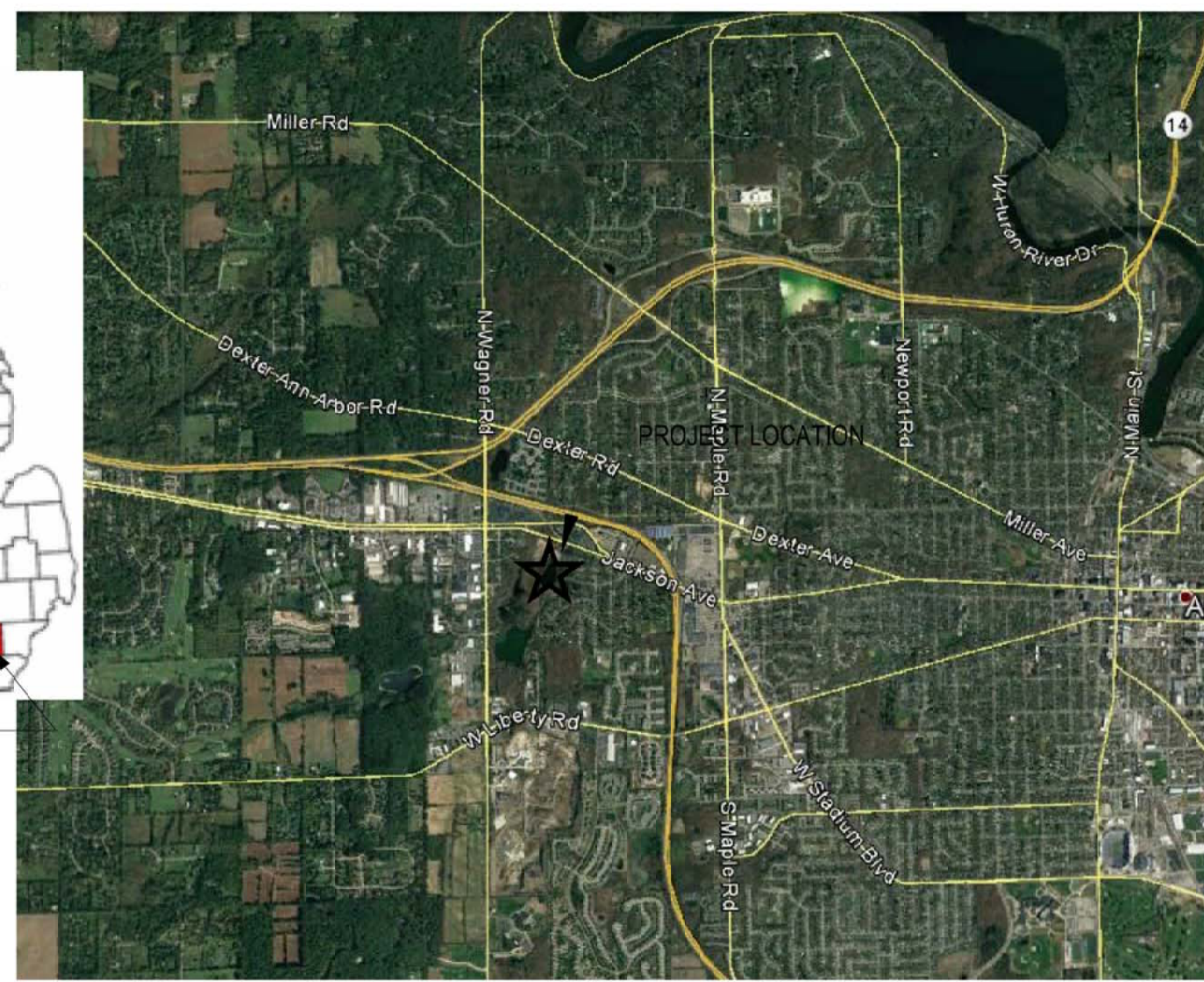
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 6647
ANN ARBOR, MI 48106-6647
734.769.4610
www.a2gov.org



ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

COVER

SHEET No. **1 OF 13**



SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	EXISTING CONDITIONS - OVERALL
3	EXISTING CONDITIONS - NORTH
4	EXISTING CONDITIONS - SOUTH
5	SITE PREPARATION PLAN
6	PROPOSED PLAN
7	BIOFILTRATION GARDEN DETAILS
8	REVEGETATION PLAN
9	REVEGETATION DETAILS
10	MISCELLANEOUS
11	NOTES
12	ANN ARBOR STANDARD NOTES
13	ANN ARBOR STANDARD NOTES

PREPARED BY:



2200 Commonwealth Boulevard, Suite 300
Ann Arbor, Michigan 48105
Phone: 734.769.3004
Fax: 734.769.31664



PREPARED UNDER THE SUPERVISION OF

B. S. S.

BRIAN SLIZZEWSKI, P.E. - MI LICENSE No. 35654
PROJECT MANAGER

11/15/2017
DATE

P:\City of Ann Arbor\Sister Lake Stormwater Retrofit\3_Data-Dwgs-Maps\CAD\ECT\11.7.17.dwg - ec_l_b-w.ctb - Plot Date: 11/13/2017 9:45:32 AM

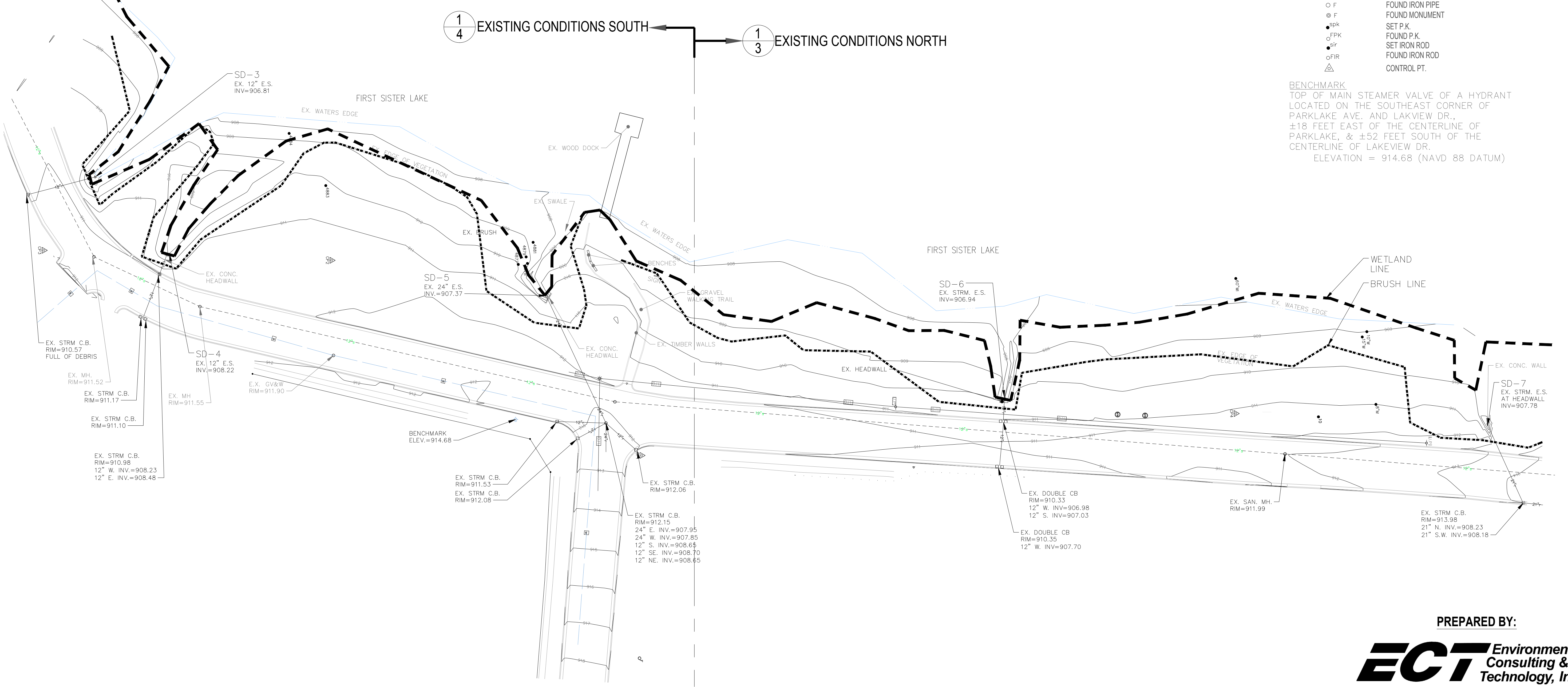
TREE LIST

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV
4864	6	Hawthorn	Crataegus	4	22	X	
4865	13	White willow	Salix alba				X
4866	15	White willow	Salix alba				X
4867	17	White willow	Salix alba				X
4868	16	White willow	Salix alba				X
4869	19	Box Elder	Acer negundo		19	X	
4870	10	Box Elder	Acer negundo				
4871	13	Blue Spruce	Picea pungens				
4872	11	White Spruce	Picea glauca				
4873	11	Silver Maple	Acer saccharinum				
4874	11	Black Walnut	Juglans nigra				
4875	13	American Elm	Ulmus americana				
4876	8	American Elm	Ulmus americana				
4877	31	Cottonwood	Populus deltoides		21	X	
4878	22	Cottonwood	Populus deltoides				
4879	20	Cottonwood	Populus deltoides				
4880	7	American Elm	Ulmus americana				
4881	23	White willow	Salix alba				X
4882	10	American Elm	Ulmus americana				
4883	10	Black Tupelo	Nyssa sylvatica				
4884	12	Silver Maple	Acer saccharinum				
4885	11	Black Walnut	Juglans nigra				
4886	13	Black Walnut	Juglans nigra				
4887	44	Cottonwood	Populus deltoides		21	X	
4888	14	Silver Maple	Acer saccharinum				

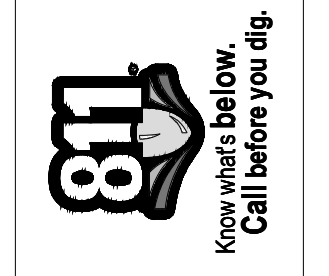
LEGEND

- EXIST. CONTOUR
- EXIST. SPOT ELEVATION
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- EXIST. FIBER OPTIC LINE
- EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- EXIST. BEEHIVE INLET
- END SECTION
- HEAD WALL
- CULVERT
- EXIST. SANITARY SEWER
- C/L OF DITCH
- WELL
- FENCE
- SINGLE TREE
- TREE OR BRUSH LIMIT
- WETLAND LINE
- FOUND IRON PIPE
- FOUND MONUMENT
- SET P.K.
- FOUND P.K.
- SET IRON ROD
- FOUND IRON ROD
- CONTROL PT.

BENCHMARK
 TOP OF MAIN STEAMER VALVE OF A HYDRANT
 LOCATED ON THE SOUTHEAST CORNER OF
 PARKLAKE AVE. AND LAKVIEW DR.,
 ±18 FEET EAST OF THE CENTERLINE OF
 PARKLAKE, & ±52 FEET SOUTH OF THE
 CENTERLINE OF LAKEVIEW DR.
 ELEVATION = 914.68 (NAVD 88 DATUM)



1 EXISTING CONDITIONS - OVERALL
 2

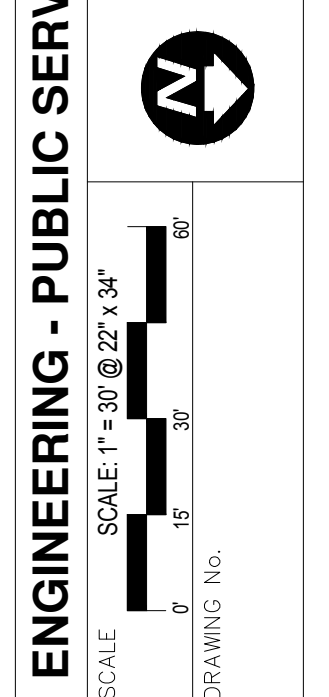


NO.	FOR BID	DATE	DESCRIPTION	REV.
1		11-16-07		

CITY OF ANN ARBOR
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 301 EAST HURON STREET
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ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR
 EXISTING CONDITIONS - OVERALL



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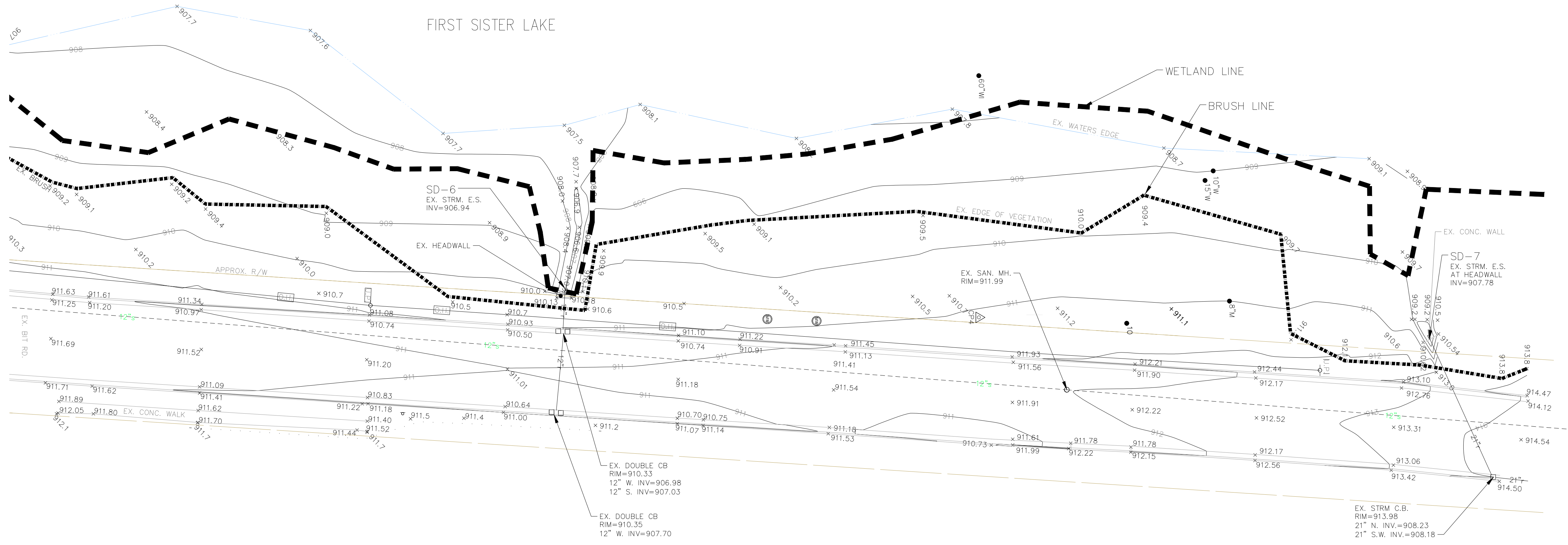
TREE LIST

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV
4864	6	Hawthorn	Crataegus	4	22	X	
4865	13	White willow	Salix alba				X
4866	15	White willow	Salix alba				X
4867	17	White willow	Salix alba				X
4868	16	White willow	Salix alba				X
4869	19	Box Elder	Acer negundo		19	X	
4870	10	Box Elder	Acer negundo				
4871	13	Blue Spruce	Picea pungens				
4872	11	White Spruce	Picea glauca				
4873	11	Silver Maple	Acer saccharinum				
4874	11	Black Walnut	Juglans nigra				
4875	13	American Elm	Ulmus americana				
4876	8	American Elm	Ulmus americana				
4877	31	Cottonwood	Populus deltoides		21	X	
4878	22	Cottonwood	Populus deltoides				
4879	20	Cottonwood	Populus deltoides				
4880	7	American Elm	Ulmus americana				
4881	23	White willow	Salix alba				X
4882	10	American Elm	Ulmus americana				
4883	10	Black Tupelo	Nyssa sylvatica				
4884	12	Silver Maple	Acer saccharinum				
4885	11	Black Walnut	Juglans nigra				
4886	13	Black Walnut	Juglans nigra				
4887	44	Cottonwood	Populus deltoides		21	X	
4888	14	Silver Maple	Acer saccharinum				

LEGEND

- 8.38 EXIST. CONTOUR
- x836.2 EXIST. SPOT ELEVATION
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- g EXIST. GAS VALVE
- f.o. EXIST. FIBER OPTIC LINE
- w EXIST. WATER MAIN
- h EXIST. HYDRANT
- g EXIST. GATE VALVE IN BOX
- g EXIST. GATE VALVE IN WELL
- r EXIST. STORM SEWER
- c EXIST. CATCH BASIN OR INLET
- b EXIST. BEEHIVE INLET
-) END SECTION
-) HEAD WALL
-) CULVERT
- s EXIST. SANITARY SEWER
- CL OF DITCH
- W WELL
- F FENCE
- SINGLE TREE
- TREE OR BRUSH LIMIT
- WETLAND LINE
- F FOUND IRON PIPE
- ⊗ F FOUND MONUMENT
- spk SET P.K.
- FPK FOUND P.K.
- sir SET IRON ROD
- FIR FOUND IRON ROD
- △ CONTROL PT.

BENCHMARK
 TOP OF MAIN STEAMER VALVE OF A HYDRANT
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 ±18 FEET EAST OF THE CENTERLINE OF
 PARKLAKE, & ±52 FEET SOUTH OF THE
 CENTERLINE OF LAKEVIEW DR.
 ELEVATION = 914.68 (NAVD 88 DATUM)



1 EXISTING CONDITIONS NORTH

PREPARED BY:

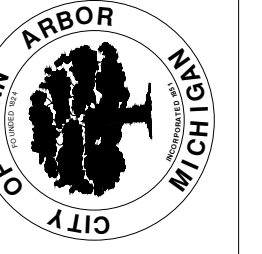


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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
1	FOR BID	08-2017	AK	ABFJ

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 PUBLIC SERVICES
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 ANN ARBOR, MI 48106-1000
 WWW.A2gov.org



ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

EXISTING CONDITIONS - NORTH



SCALE: 1" = 20' @ 27" x 34"
 DRAWING No. 47

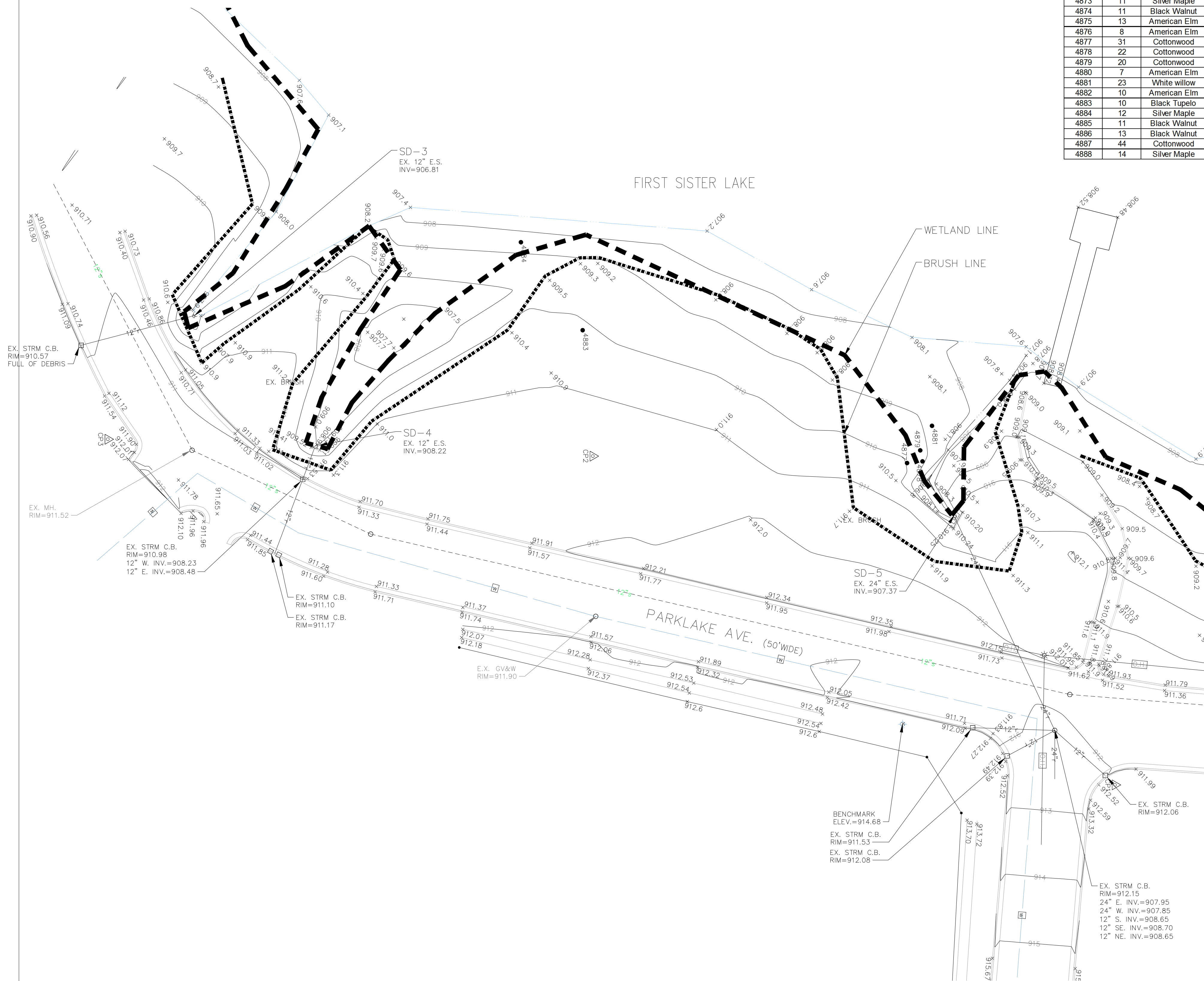
SHEET No. 3 OF 13

TREE LIST

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV
4864	6	Hawthorn	Crataegus	4	22	X	
4865	13	White willow	Salix alba				X
4866	15	White willow	Salix alba				X
4867	17	White willow	Salix alba				X
4868	16	White willow	Salix alba				X
4869	19	Box Elder	Acer negundo		19	X	
4870	10	Box Elder	Acer negundo				
4871	13	Blue Spruce	Picea pungens				
4872	11	White Spruce	Picea glauca				
4873	11	Silver Maple	Acer saccharinum				
4874	11	Black Walnut	Juglans nigra				
4875	13	American Elm	Ulmus americana				
4876	8	American Elm	Ulmus americana				
4877	31	Cottonwood	Populus deltoides		21	X	
4878	22	Cottonwood	Populus deltoides				
4879	20	Cottonwood	Populus deltoides				
4880	7	American Elm	Ulmus americana				
4881	23	White willow	Salix alba				X
4882	10	American Elm	Ulmus americana				
4883	10	Black Tupelo	Nyssa sylvatica				
4884	12	Silver Maple	Acer saccharinum				
4885	11	Black Walnut	Juglans nigra				
4886	13	Black Walnut	Juglans nigra				
4887	44	Cottonwood	Populus deltoides		21	X	
4888	14	Silver Maple	Acer saccharinum				

LEGEND

- 8.38 EXIST. CONTOUR
- x836.2 EXIST. SPOT ELEVATION
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- g EXIST. GAS VALVE
- f.o. EXIST. FIBER OPTIC LINE
- w EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- r EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- EXIST. BEEHIVE INLET
- END SECTION
- HEAD WALL
- CULVERT
- EXIST. SANITARY SEWER
- CL OF DITCH
- WELL
- FENCE
- SINGLE TREE
- TREE OR BRUSH LIMIT
- WETLAND BOUNDARY
- F FOUND IRON PIPE
- ⊙ F FOUND MONUMENT
- SPK SET P.K.
- FPK FOUND P.K.
- SIR SET IRON ROD
- FIR FOUND IRON ROD
- △ CONTROL PT.



BENCHMARK
 TOP OF MAIN STEAMER VALVE OF A HYDRANT
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 ELEVATION = 914.68 (NAVD 88 DATUM)

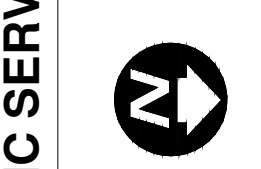


DATE	DESCRIPTION
11-10-2017	FOR BID
	AK DRAWN
	ABPJ CHECKED

CITY OF ANN ARBOR
 PUBLIC SERVICES
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 ANN ARBOR, MI 48106
 www.a2gov.org



ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR
 EXISTING CONDITIONS - SOUTH

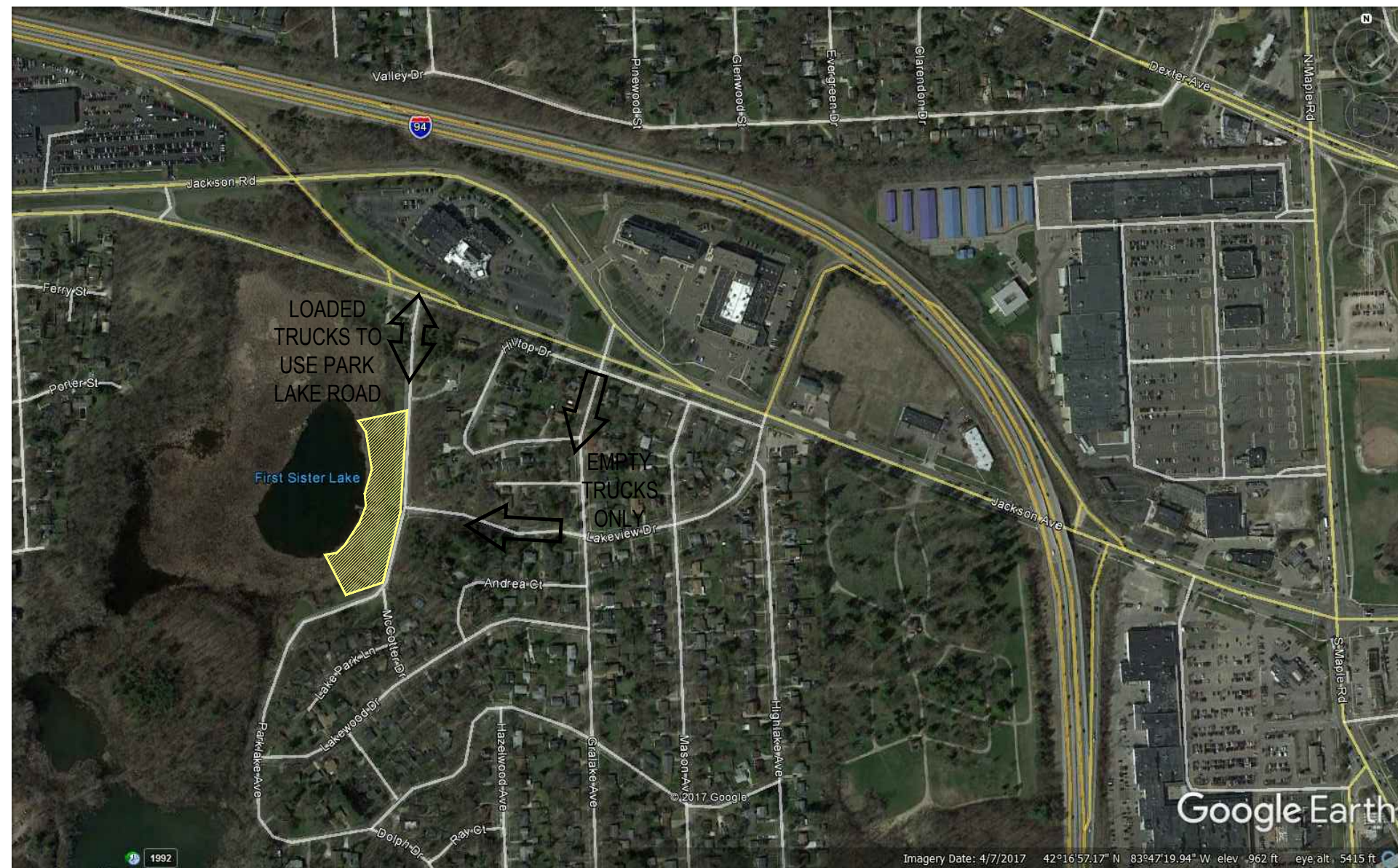


SCALE: 1" = 20' @ 22" x 34"
 DRAWING No. 407

PREPARED BY:



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 Ann Arbor, Michigan 48105
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 Fax: 734.769.31664



2
5 SITE ACCESS MAP

TREE LIST

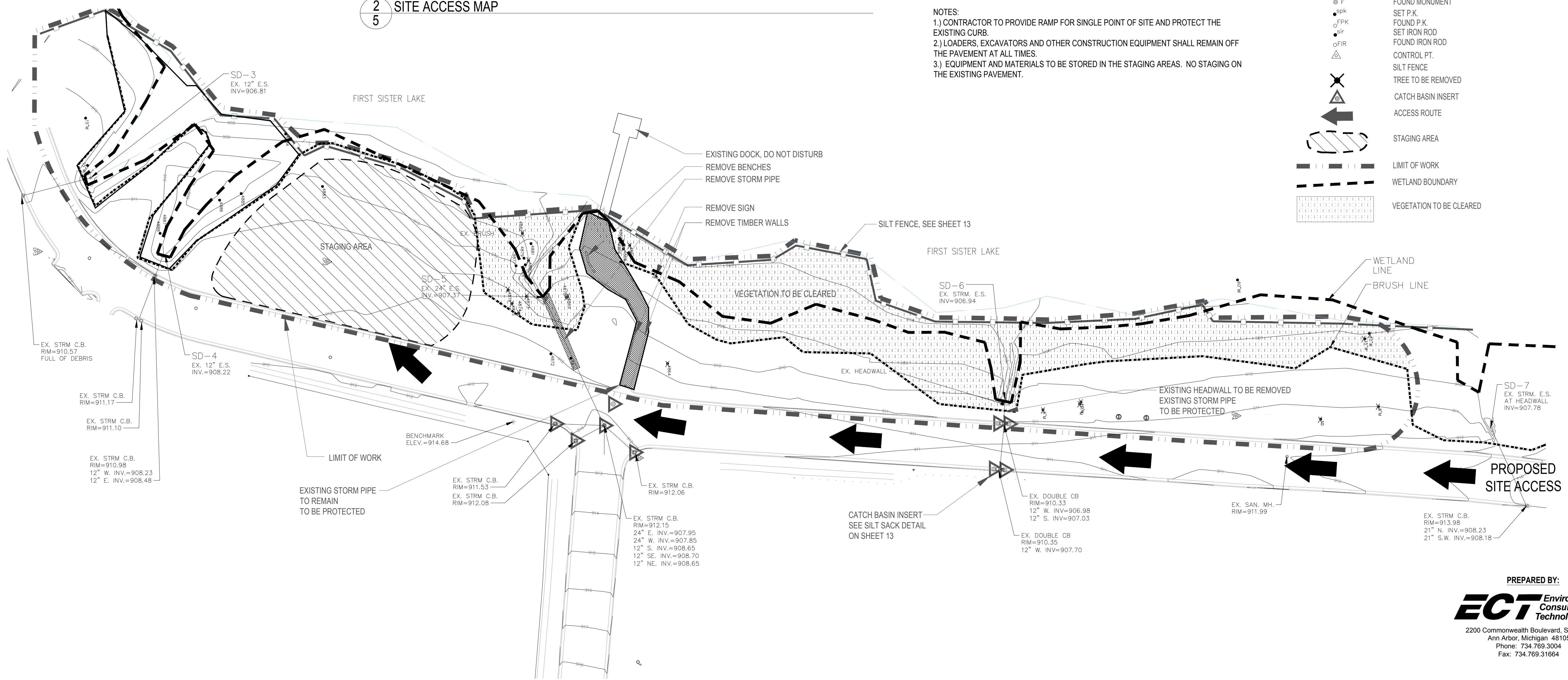
TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	SCORE	LM	INV	REMOVE
4864	6	Hawthorn	Crataegus	4	22	X		X
4865	13	White Willow	Salix alba				X	
4866	15	White Willow	Salix alba				X	
4867	17	White Willow	Salix alba				X	
4868	16	White Willow	Salix alba				X	
4869	19	Box Elder	Acer negundo	19	X			X
4870	10	Box Elder	Acer negundo					X
4871	13	Blue Spruce	Picea pungens					X
4872	11	White Spruce	Picea glauca					X
4873	11	Silver Maple	Acer saccharinum					X
4874	11	Black Walnut	Juglans nigra					X
4875	13	American Elm	Ulmus americana					X
4876	8	American Elm	Ulmus americana					X
4877	31	Cottonwood	Populus deltoides	21	X			
4878	22	Cottonwood	Populus deltoides					
4879	20	Cottonwood	Populus deltoides					
4880	7	American Elm	Ulmus americana					X
4881	23	White Willow	Salix alba				X	
4882	10	American Elm	Ulmus americana					X
4883	10	Black Tupelo	Nyssa sylvatica					
4884	12	Silver Maple	Acer saccharinum					
4885	11	Black Walnut	Juglans nigra					
4886	13	Black Walnut	Juglans nigra					
4887	44	Cottonwood	Populus deltoides	21	X			
4888	14	Silver Maple	Acer saccharinum					

NOTE: CLEARING LIMITS AND TREE REMOVALS SHOWN ON PLAN. NOT ALL TREES WITHIN CLEARING LIMITS ARE IN THE TREE LIST. CONTRACTOR TO VERIFY CLEARING REQUIREMENTS PRIOR TO CONSTRUCTION.

- NOTES:
 1.) CONTRACTOR TO PROVIDE RAMP FOR SINGLE POINT OF SITE AND PROTECT THE EXISTING CURB.
 2.) LOADERS, EXCAVATORS AND OTHER CONSTRUCTION EQUIPMENT SHALL REMAIN OFF THE PAVEMENT AT ALL TIMES.
 3.) EQUIPMENT AND MATERIALS TO BE STORED IN THE STAGING AREAS. NO STAGING ON THE EXISTING PAVEMENT.

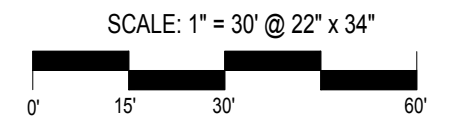
LEGEND

- 8.38 EXIST. CONTOUR
- ×836.2 EXIST. SPOT ELEVATION
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- g EXIST. GAS VALVE
- f.o. EXIST. FIBER OPTIC LINE
- w EXIST. WATER MAIN
- h EXIST. HYDRANT
- g EXIST. GATE VALVE IN BOX
- g EXIST. GATE VALVE IN WELL
- r EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- EXIST. BEEHIVE INLET
-) END SECTION
- HEAD WALL
- CULVERT
- s — EXIST. SANITARY SEWER
- C/L OF DITCH
- ⊙ WELL
- FENCE
- SINGLE TREE
- TREE OR BRUSH LIMIT
- F MANHOLE
- ⊙ F FOUND IRON PIPE
- ⊙ F FOUND MONUMENT
- spk SET P.K.
- FPK FOUND P.K.
- sir SET IRON ROD
- FIR FOUND IRON ROD
- △ CONTROL PT.
- △ SILT FENCE
- △ TREE TO BE REMOVED
- △ CATCH BASIN INSERT
- ACCESS ROUTE
- ▨ STAGING AREA
- LIMIT OF WORK
- WETLAND BOUNDARY
- ▨ VEGETATION TO BE CLEARED



1
5 SITE PREPARATION PLAN

PREPARED BY:
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 Phone: 734.769.3004
 Fax: 734.769.31664



FOR BID	DATE	DESCRIPTION	REV.
1	11-16-2017		

CITY OF ANN ARBOR
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 P.O. BOX 864
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ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

SITE PREPARATION PLAN

AS SHOWN

DRAWING No.

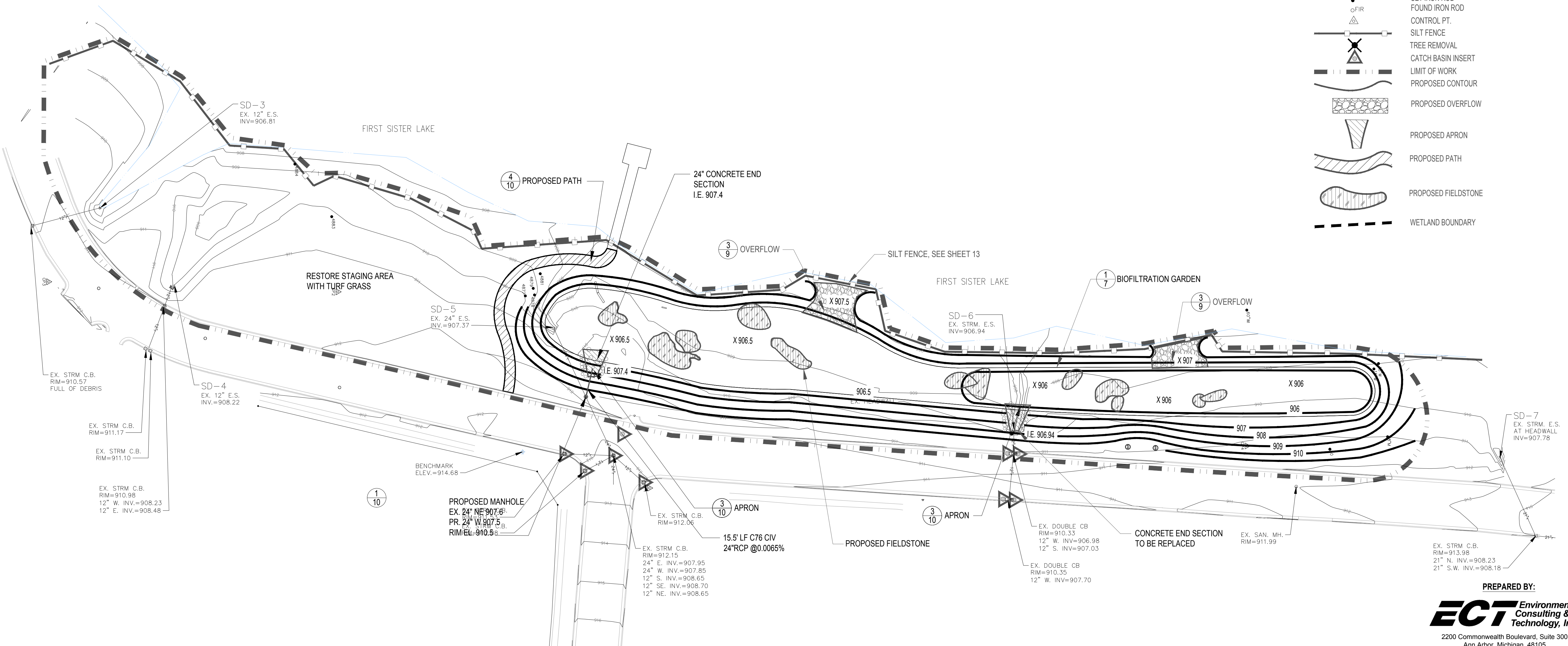
SHEET No.

5 OF 13

NOTE: SEE SHEET 8 FOR REVEGETATION PLAN

LEGEND

- 8.38 EXIST. CONTOUR
- x8.36.2 EXIST. SPOT ELEVATION
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- g EXIST. GAS VALVE
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- F FOUND IRON PIPE
- ⊙ F FOUND IRON MONUMENT
- spk SET P.K.
- FPK FOUND P.K.
- sir SET IRON ROD
- FIR FOUND IRON ROD
- △ CONTROL PT.
- SILT FENCE
- X TREE REMOVAL
- ▽ CATCH BASIN INSERT
- LIMIT OF WORK
- PROPOSED CONTOUR
- ▒ PROPOSED OVERFLOW
- ▒ PROPOSED APRON
- ▒ PROPOSED PATH
- ▒ PROPOSED FIELDSTONE
- WETLAND BOUNDARY



1
6 PROPOSED PLAN

Know what's below.
Call before you dig.

REV.	DATE	DESCRIPTION
1	11-16-2017	FOR BID

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PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
ANN ARBOR
734-794-4410
www.a2gov.org

ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE: 1" = 30' @ 22" x 34"

DRAWING No.

PROPOSED PLAN

PREPARED BY:

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Phone: 734.769.3004
Fax: 734.769.31664

SHEET No.

6 OF 13

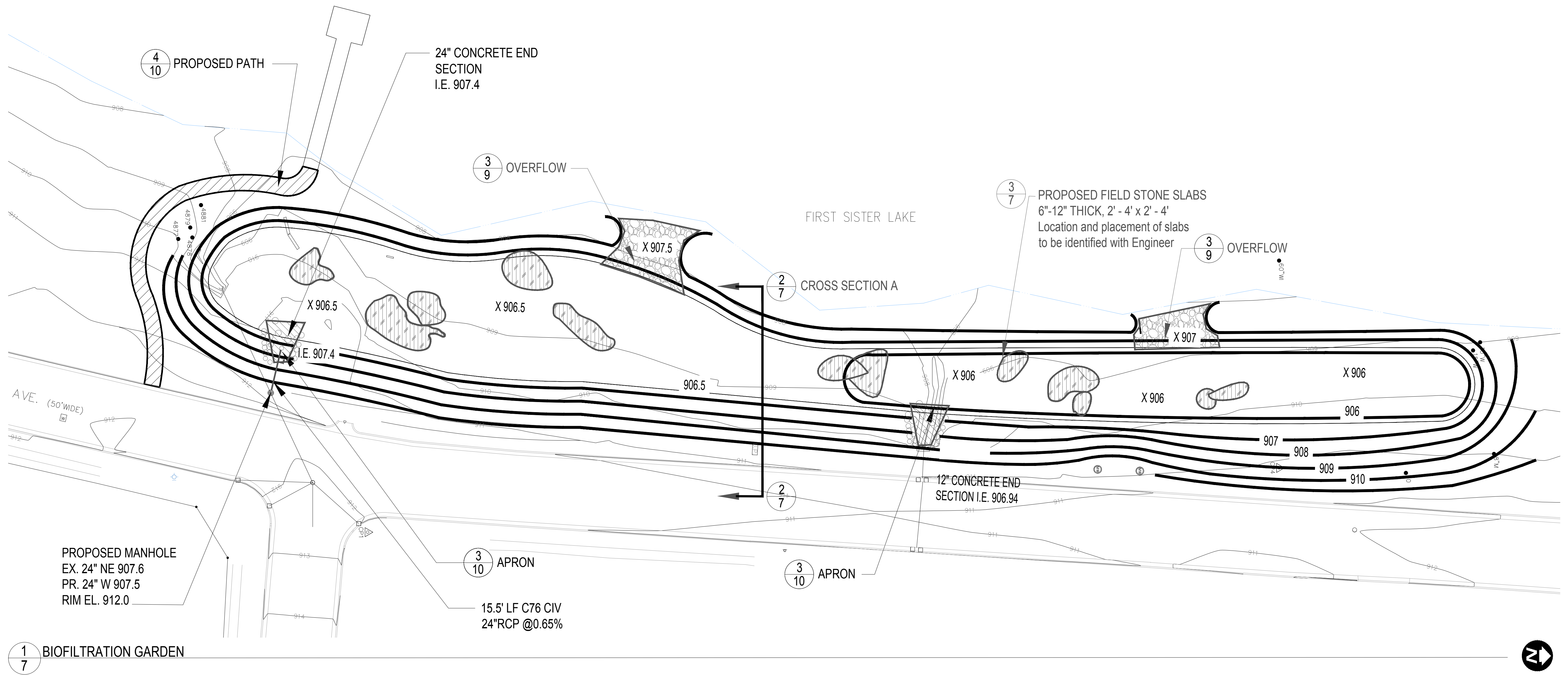


1	REV.		
	FOR BID	DESCRIPTION	
	DATE		
	AK	DRAWN	
	AB/PJ	CHECKED	

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
734.769.3004
www.a2gov.org



ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR
BIOFILTRATION GARDEN DETAILS

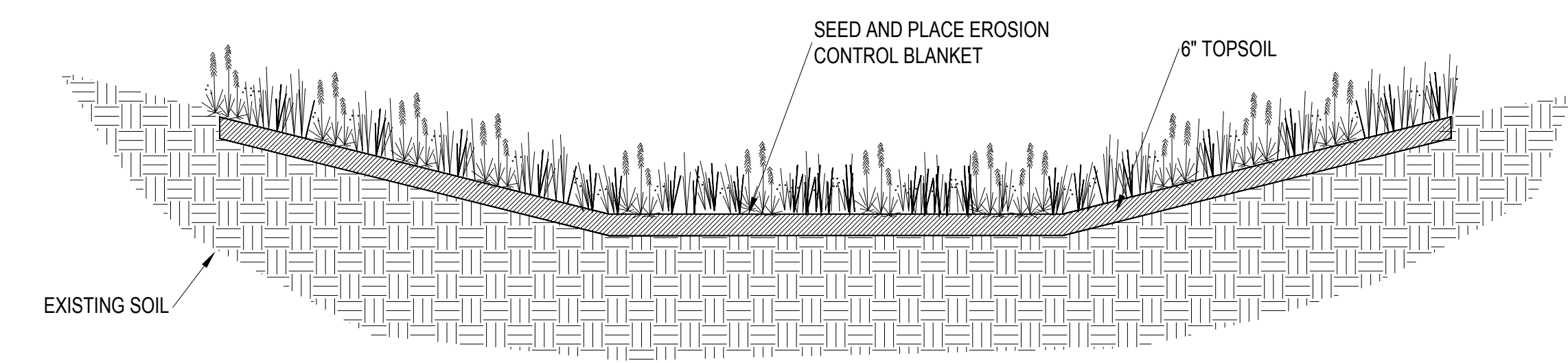


1
7 BIOFILTRATION GARDEN

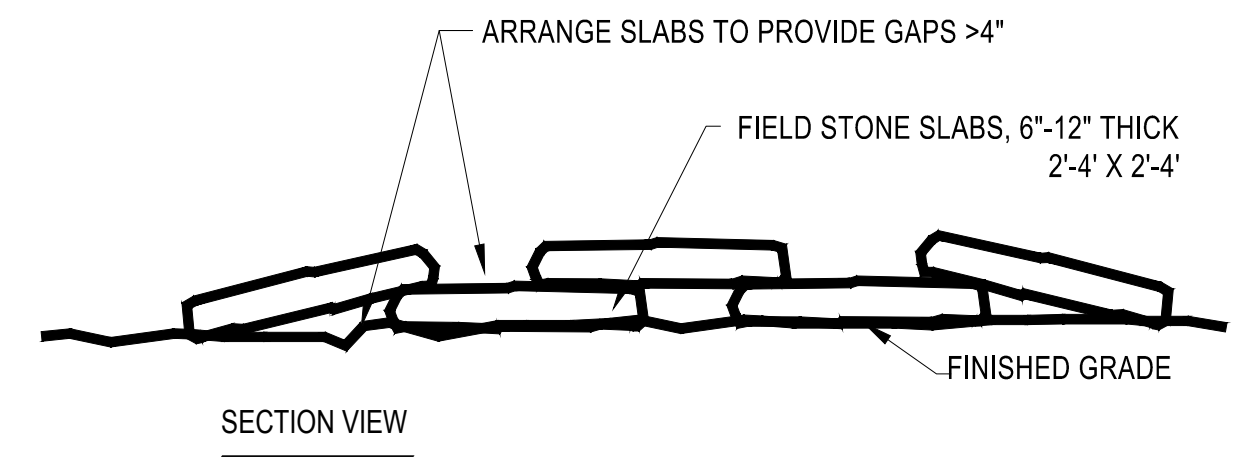
LEGEND

	EXIST. CONTOUR		EXIST. BEEHIVE INLET		FOUND IRON PIPE
	EXIST. SPOT ELEVATION		END SECTION		FOUND MONUMENT
	EXIST. TELEPHONE LINE		HEAD WALL		SET P.K.
	EXIST. ELECTRIC LINE		CULVERT		FOUND P.K.
	EXIST. GAS LINE		EXIST. SANITARY SEWER		SET IRON ROD
	EXIST. GAS VALVE		C/I OF DITCH		FOUND IRON ROD
	EXIST. FIBER OPTIC LINE		WELL		CONTROL PT.
	EXIST. WATER MAIN		FENCE		SILT FENCE
	EXIST. HYDRANT		SINGLE TREE		TREE REMOVAL
	EXIST. GATE VALVE IN BOX		TREE OR BRUSH LIMIT		CATCH BASIN INSERT
	EXIST. GATE VALVE IN WELL		MANHOLE		ACCESS ROUTE
	EXIST. STORM SEWER				
	EXIST. CATCH BASIN OR INLET				

BENCHMARK
TOP OF MAIN STEAMER VALVE OF A HYDRANT LOCATED ON THE SOUTHEAST CORNER OF PARKLAKE AVE. AND LAKVIEW DR., ±18 FEET EAST OF THE CENTERLINE OF PARKLAKE, & ±52 FEET SOUTH OF THE CENTERLINE OF LAKEVIEW DR.
ELEVATION = 914.68 (NAVD 88 DATUM)



2
7 CROSS-SECTION A
NOT TO SCALE



2
7 FIELD STONE SLABS
NOT TO SCALE

PREPARED BY:
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PLUG LIST

Symbol	Scientific Name	Common Name	Wetness Coefficient	Michigan Wetland Category	Coefficient of Conservatism
Forbs					
Ai	<i>Asclepias incarnata</i>	Swamp milkweed	-5	OBL	6
Ep	<i>Eupatorium perfoliatum</i>	Boneset	-4	FACW+	4
Em	<i>Eutrochium maculatum</i>	Joe-pye weed	-5	[OBL]	4
Iv	<i>Iris versicolor</i>	Blue flag iris	-5	OBL	5
Rc	<i>Rosa carolina</i>	Pasture Rose	1	FACU-	4
Rf	<i>Rudbeckia fulgida</i>	Black-eyed Susan	-5	[OBL]	9
To	<i>Tradescantia ohiensis</i>	Spiderwort	2	FACU+	5
Vh	<i>Verbena hastata</i>	Blue vervain	-4	FACW+	4
Vm	<i>Vernonia missurcia</i>	Missouri ironweed	-1	FAC+	4
Grasses					
Cv	<i>Carex vulpinoidea</i>	Fox Sedge	-5	OBL	1
Lo	<i>Leersia oryzoides</i>	Cut grass	-5	OBL	3

SHRUB LIST

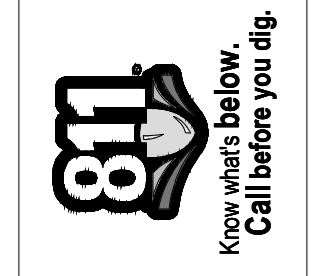
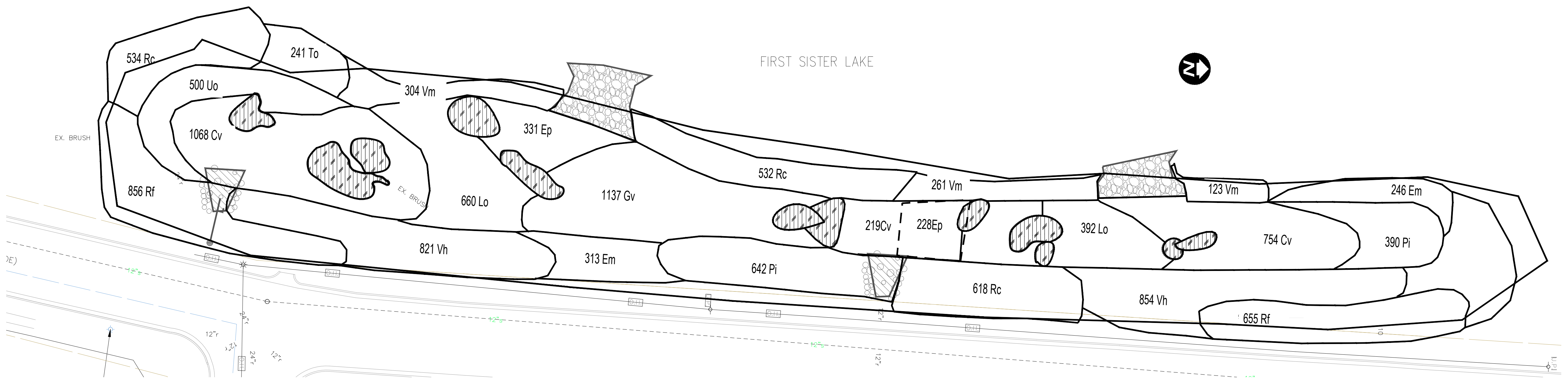
SYM	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	CONT.
CS	10	CORNUS SERICEA	RED OSIER DOGWOOD	36" HT.	3 GAL.
RA	10	RHUS AROMATICA 'GRO-LOW'	GRO LOW SUMAC	36" HT.	3 GAL.
SA	5	SPIREA ALBA	MEADOWSWEET	36" HT.	3 GAL.

SEED MIX

SCIENTIFIC NAME	COMMON NAME	LBS/AC
ANDROPOGON GERARDII	BIG BLUESTEM	5.000
ANDROPOGON SCOPARIUS	LITTLE BLUESTEM	5.000
BOUTELOUA CURTIPENDULA	SIDEOATS GRAMMA	5.000
ELYMUS CANADENSIS	CANADA WILD RYE	8.000
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	8.000
GLYCERIA STRIATA	FOWL MANNA GRASS	1.000
PANICUM VIRGATUM	SWITCH GRASS	1.000
SORGHASTRUM NUTANS	INDIAN GRASS	10.000
SPARTINA PECTINATA	PRAIRIE CORD GRASS	0.500
SPOROBOLUS HETEROLEPIS	DROPSEED	0.500
AVENA SATIVA	SEED OATS	20.000
LOLIUM MULTIFLORUM	ANNUAL RYE	5.000
TOTAL		69.000

LEGEND

8.38	EXIST. CONTOUR
x836.2	EXIST. SPOT ELEVATION
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
h	EXIST. HYDRANT
g	EXIST. GATE VALVE IN BOX
g	EXIST. GATE VALVE IN WELL
r	EXIST. STORM SEWER
g	EXIST. CATCH BASIN OR INLET
h	EXIST. BEEHIVE INLET
)	END SECTION
)	HEAD WALL
	CULVERT
s	EXIST. SANITARY SEWER
---	C/L OF DITCH
W	WELL
-	FENCE
•	SINGLE TREE
---	TREE OR BRUSH LIMIT
•	MANHOLE
○ F	FOUND IRON PIPE
⊗ F	FOUND MONUMENT
• spk	SET P.K.
• FPK	FOUND P.K.
• fir	SET IRON ROD
○ FIR	FOUND IRON ROD
△	CONTROL PT.
---	SILT FENCE
X	TREE REMOVAL
△	CATCH BASIN INSERT
←	ACCESS ROUTE
---	WETLAND BOUNDARY



NO.	DATE	DESCRIPTION	BY	CHECKED
1	11-10-2017	FOR BID	AK	ABPJ

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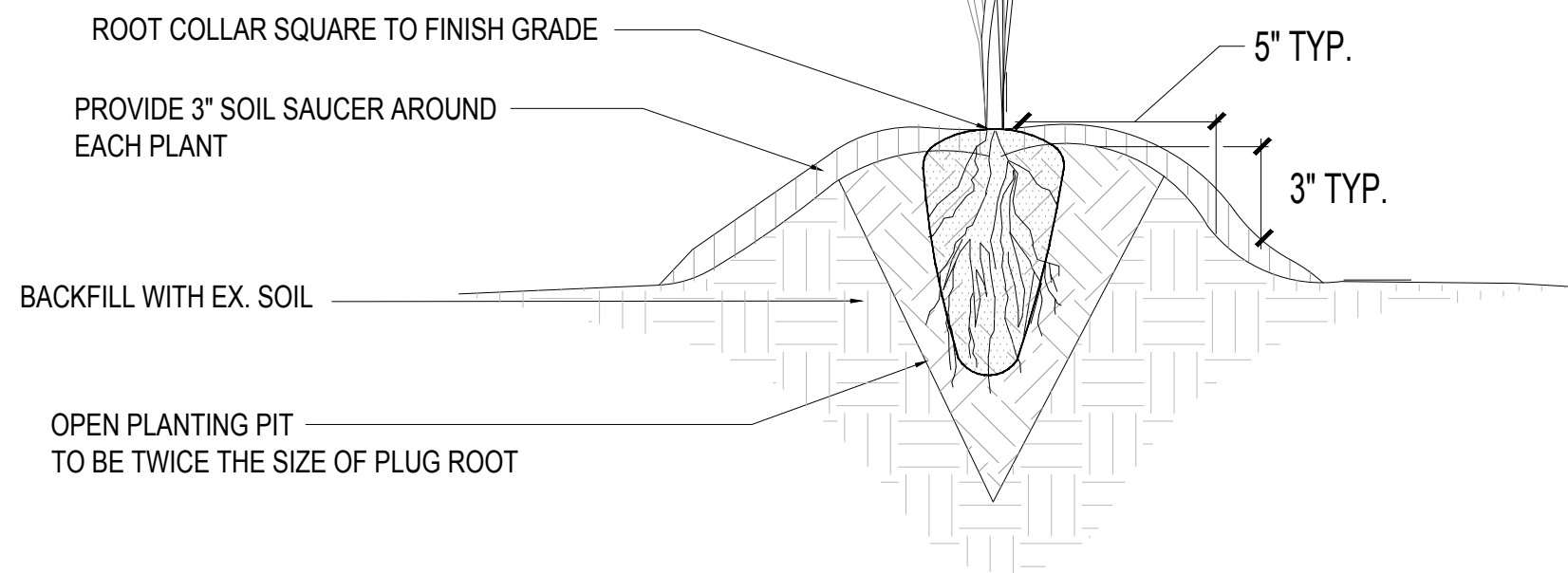
REVEGETATION PLAN

SCALE: 1" = 20' @ 22" x 34"

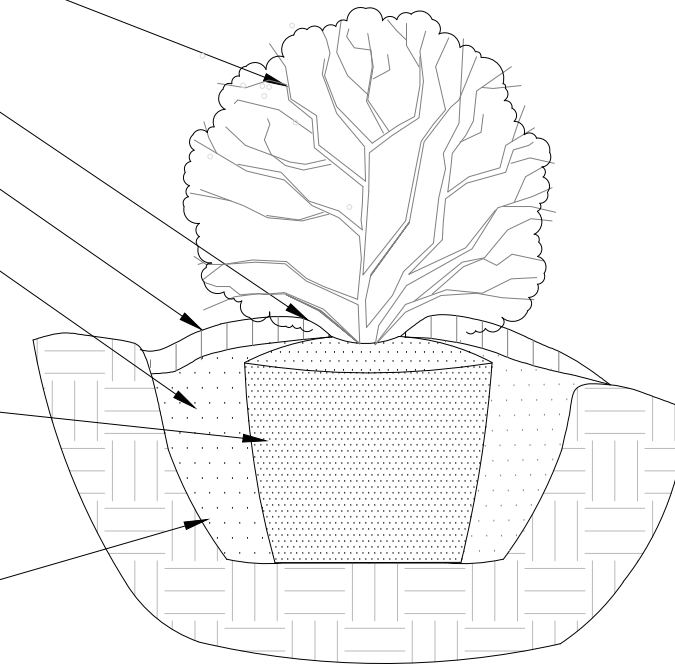
DRAWING No.

PREPARED BY:
ECT Environmental Consulting & Technology, Inc.
 2200 Commonwealth Boulevard, Suite 300
 Ann Arbor, Michigan 48105
 Phone: 734.769.3004
 Fax: 734.769.31664

NOTES:
 ENSURE THAT ROOTS ARE POINTING DOWNWARD IN THE HOLE. WHEN CLOSING PLANTING HOLE, ENSURE NO AIR POCKETS ARE LEFT IN HOLE.
 WATER TO SATURATE BACKFILL MATERIAL WITHIN 1 HOUR OF PLANTING

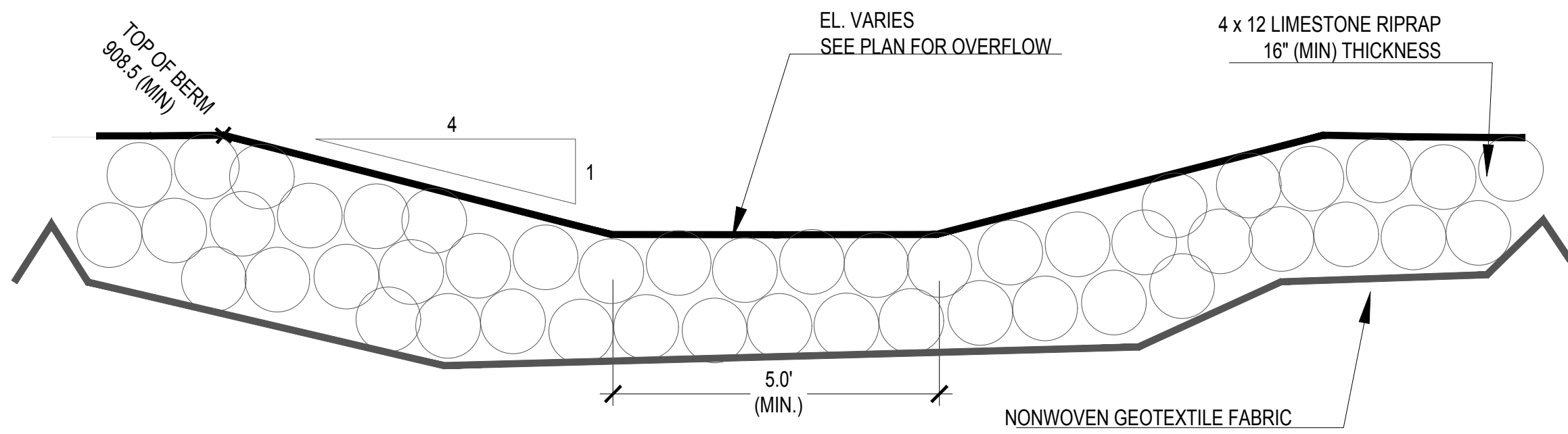


PLANT ALL SHRUBS VERTICAL.
 PRUNE ALL DEAD OR DAMAGED BRANCHES
 4" BARK MULCH TO COVER ENTIRE PLANTING HOLE. TAPER MULCH TO BASE OF PLANT.
 PROVIDE 3" SOIL SAUCER AROUND EACH PLANT
 BACKFILL WITH MIX OF 50% IMPORTED TOPSOIL AND 50% EXCAVATED SITE SOIL & TAMP LIGHTLY
 WATER TO SATURATE BACKFILL MATERIAL WITHIN 8 HOURS OF PLANTING
 IF CONTAINER STOCK IS ROOT BOUND, MAKE 4 VERTICAL CUTS IN EACH ROOT BALL WITH SHARP BLADE
 SCARIFY BOTTOM AND SIDEWALLS OF PLANTING PIT.

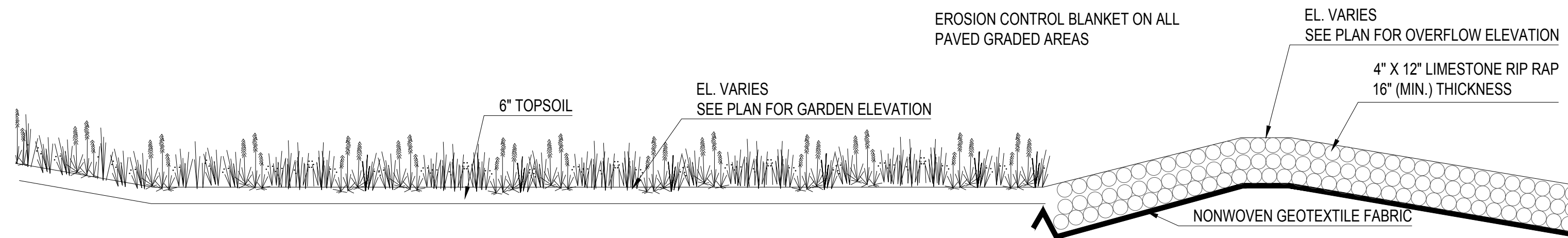


1 HERBACEOUS PLANTING DETAIL
 9 NOT TO SCALE

2 SHRUB PLANTING DETAIL
 9 NOT TO SCALE



3 OVERFLOW OUTLET DETAIL
 9 NOT TO SCALE



4 OVERFLOW DETAIL
 9 NOT TO SCALE



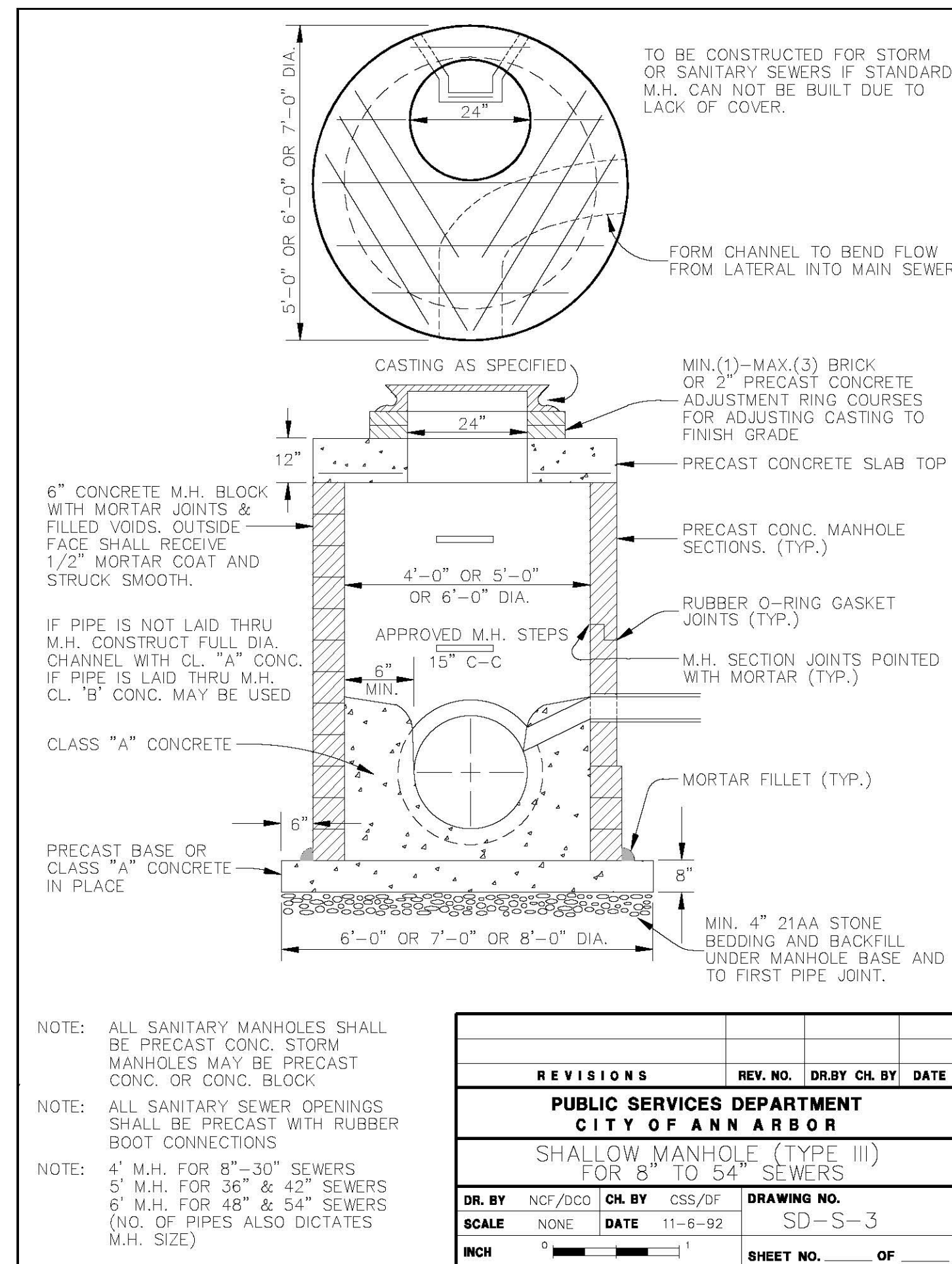
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1	FOR BID	11-10-2017	AK	ABPJ	CHECKED

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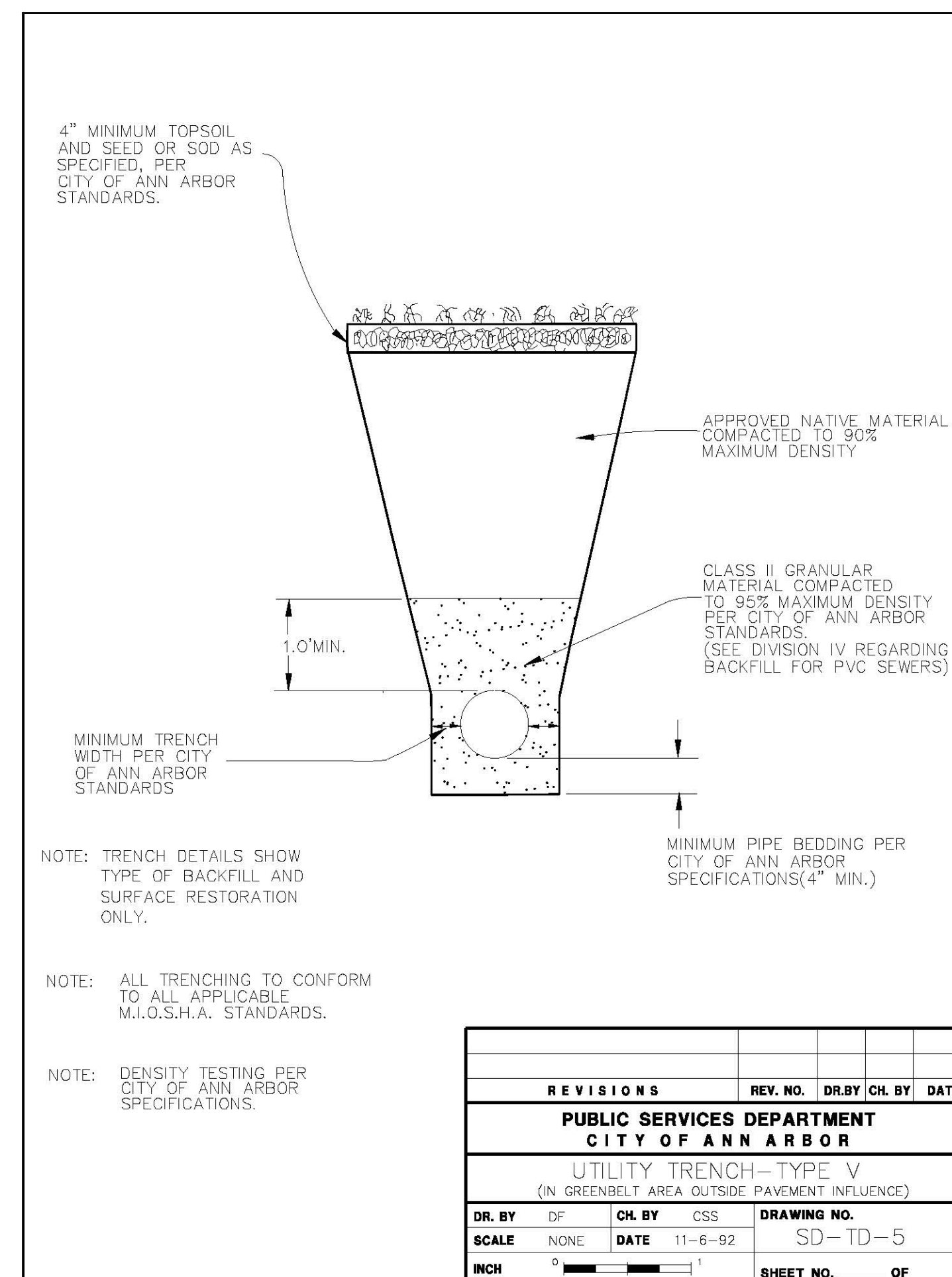


ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR
 REVEGETATION DETAILS
 SCALE: 1" = 20' @ 22" x 34"
 DRAWING No. 07

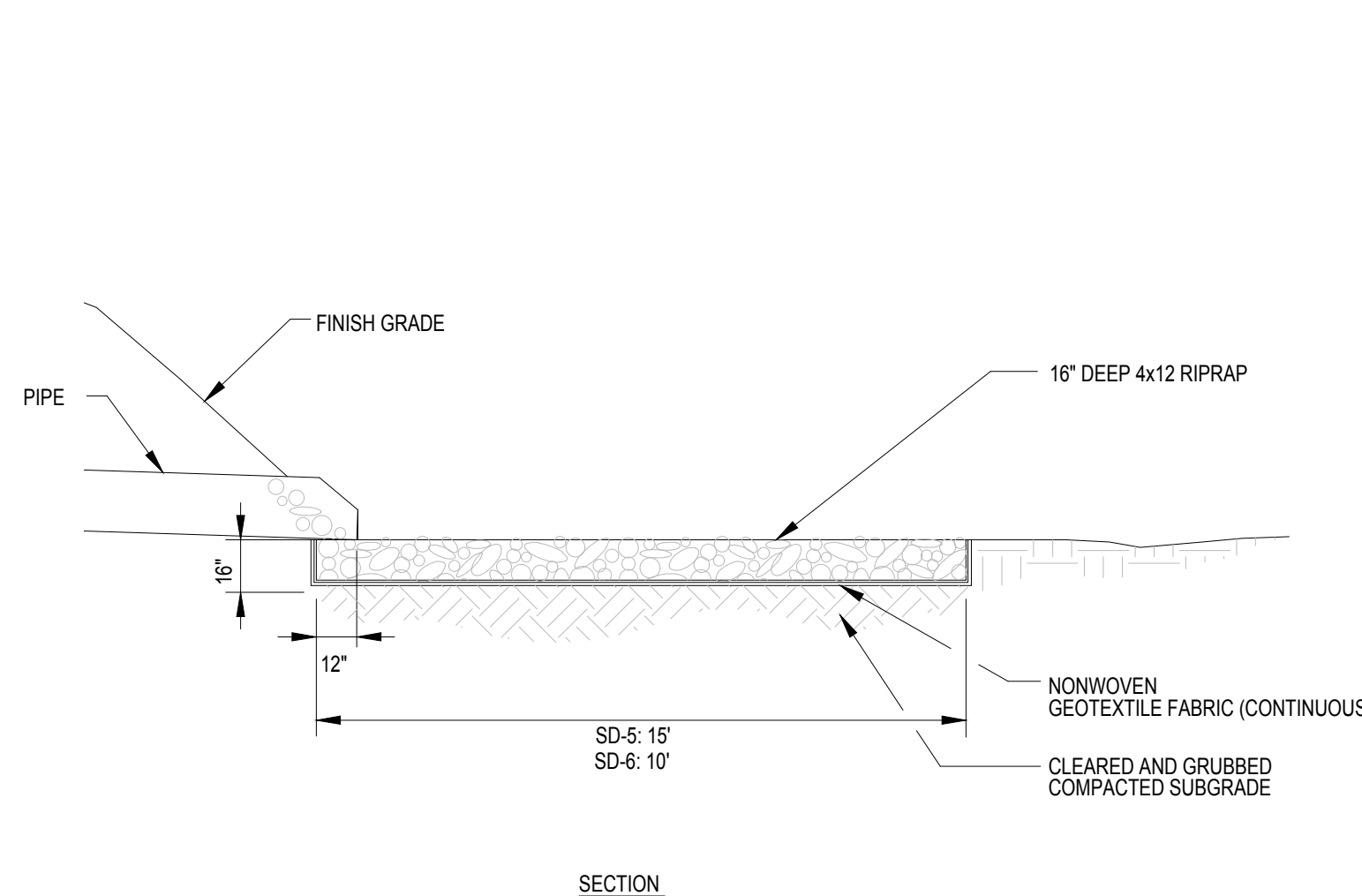
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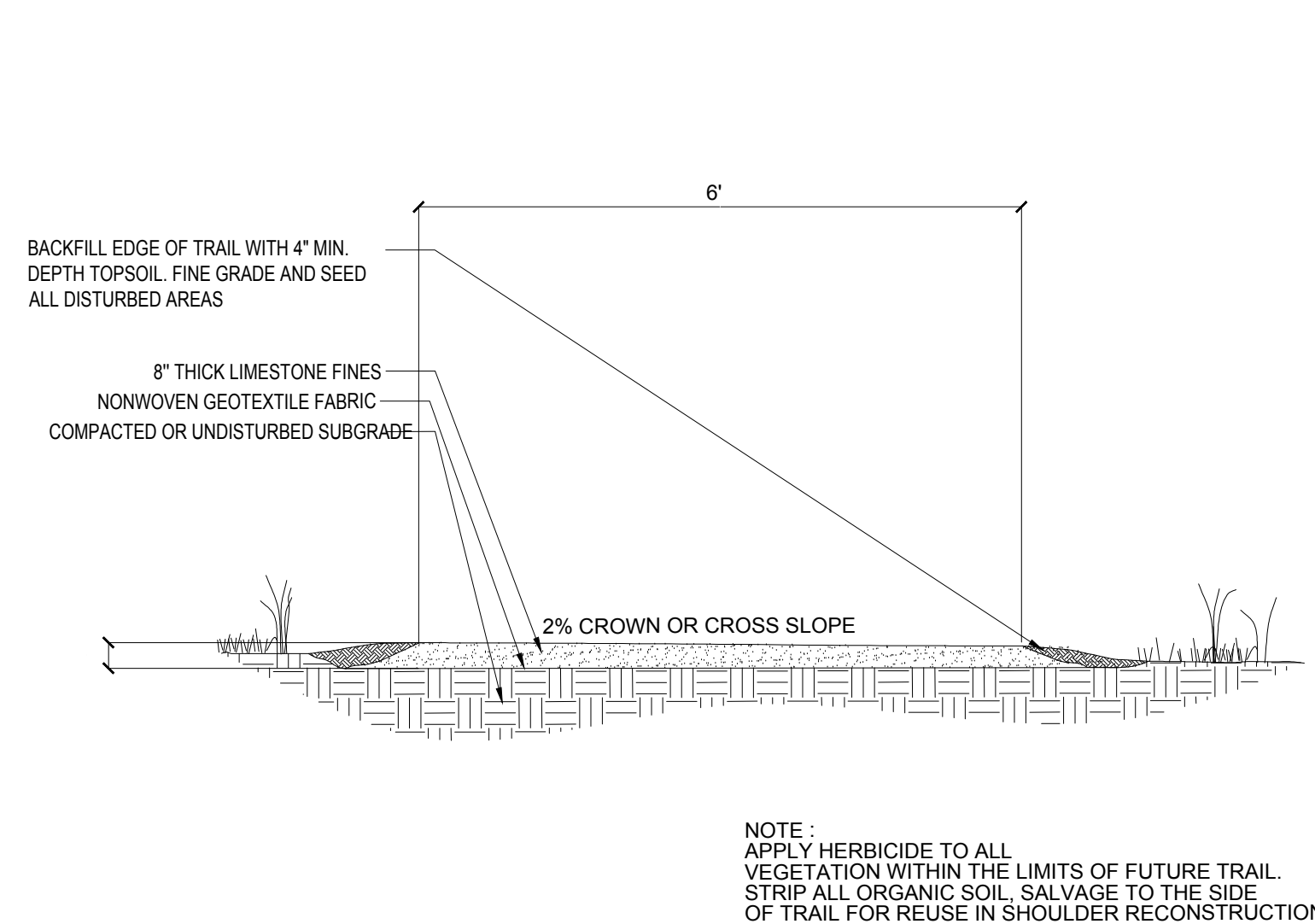
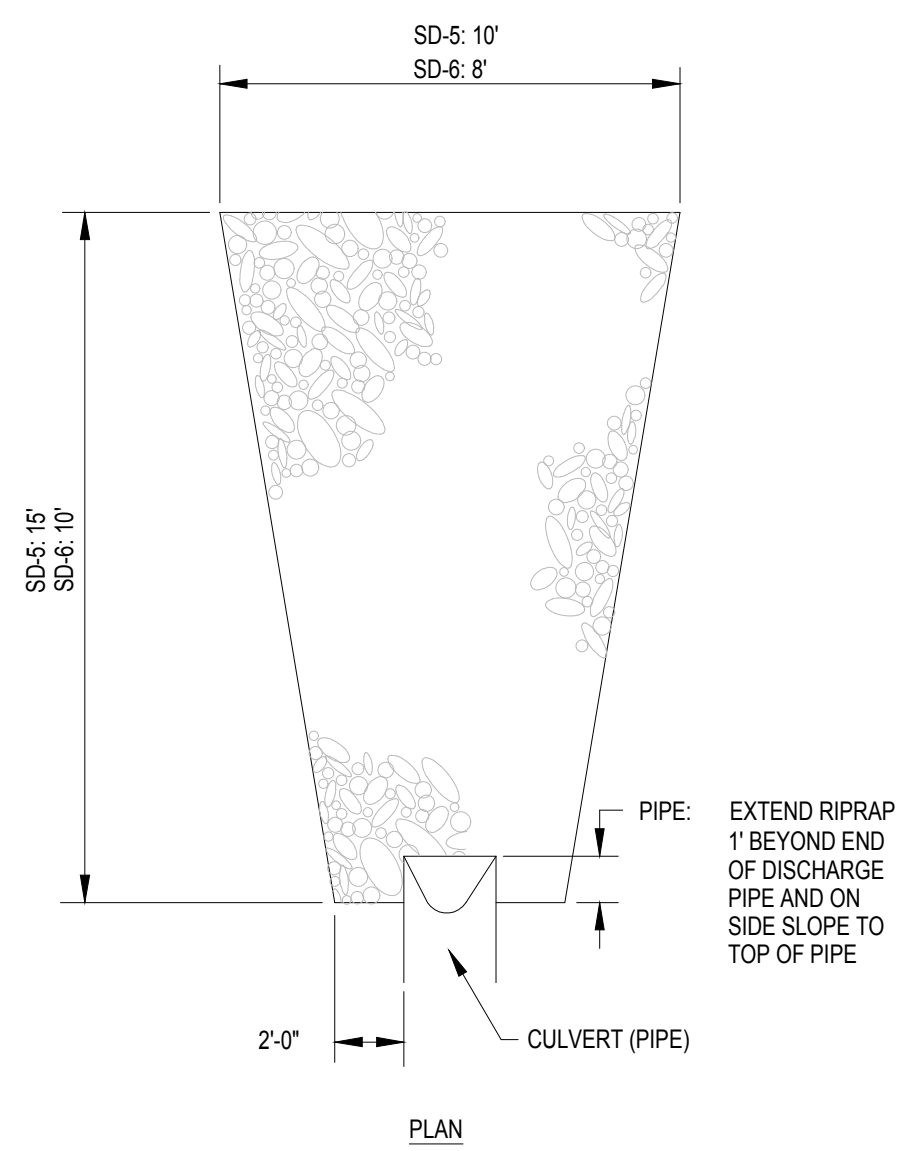
1 MANHOLE DETAIL
10 NOT TO SCALE



2 STANDARD TRENCH DETAIL
10 NOT TO SCALE

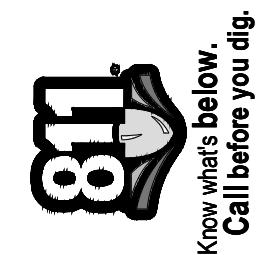


3 ROCK APRON DETAIL
10 NOT TO SCALE



4 LIMESTONE PATH DETAIL
10 NOT TO SCALE

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MISCELLANEOUS

SCALE: 1" = 20' @ 22" x 34"
DRAWING No. 10 OF 13

NATIVE PLANTINGS:

1. TREES, SHRUBS, AND PLUGS SHALL BE OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION. MICHIGAN SOURCES FOR TREE, SHRUBS, AND PLUGS SHALL BE LOCATED BEFORE BRANCHING OUT TO OTHER NORTH CENTRAL STATES. NATIVE PLANTINGS INCLUDE ALL TREES, SHRUBS, AND PLUGS INSTALLED IN THE WETLAND MITIGATION AND WETLAND ENHANCEMENT AREAS.
2. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND MUST MEET APPLICABLE REQUIREMENTS OF ICBN AND ICNCP. PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS, OR LARVAE. PLANTS SHALL BE FREE OF KINKED, CIRCLING OR GIRDLING TRUNK SURFACE AND CENTER ROOTS, AND SHALL NOT BE ROOT-BOUND. RESPECT MAXIMUM STORAGE TIMES FOR PLANT STOCK.
3. NATIVE PLANTING AREAS SHALL BE INSTALLED AFTER MAY 15 (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AS DIRECTED BY CONSULTANT.
4. FURNISH PLANT SPECIES AND SIZES AS INDICATED ON THE PLANS. PLANT STOCK SHALL BE TRUE TO THEIR NAME (GENUS AND SPECIES), AS SPECIFIED. CULTIVARS AND SPECIMENS SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY CONSULTANT.
5. NATIVE PLANTINGS TO BE INSTALLED PER DETAILS.
6. PLUGS, CONTAINERIZED PLANTS, AND ROOT STOCKS WHICH ARE TO BE PLACED IN SATURATED OR FLOODED SOIL CONDITIONS SHALL BE PRE-CONDITIONED FOR THIS PLACEMENT BY BEING HELD UNDER SIMILAR CONDITIONS IN A WET ENVIROMENT AT THE NURSERY PRIOR TO SHIPMENT TO THE SITE.
7. REMOVE ALL CONTAINERS AND PACKAGING MATERIAL AND DISPOSE OF LEGALLY OFF-SITE.
8. WATER PLANT STOCK IMMEDIATELY AFTER PLANTING SUCH THAT ROOT ZONE IS THOROUGHLY SOAKED. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP PLUGS ADEQUATELY WATERED, IF NECESSARY, TO ENSURE THEIR SURVIVAL.
9. IF EROSION CONTROL BLANKET IS NEEDED IN AREAS WHERE PLUGS ARE PRESENT, INSTALL EROSION CONTROL BLANKET AFTER SEEDING, BUT PRIOR TO PLANTING. EROSION CONTROL BLANKET SHALL BE INSTALLED WHERE THE CONTRACTOR FEELS IT NECESSARY TO STABILIZE THE SITE AT NO ADDITIONAL COST TO THE OWNER.
10. FIELD ADJUST PLANTINGS TO DIVERSIFY SPECIES ACROSS THE PLANTING AREAS AND TO MEET FINISH GRADE OF WETLAND WITH PLANTING REQUIREMENTS FOR SPECIES BASED ON DEPTH. ANY ADJUSTMENTS WILL BE SHOWN ON AN AS-BUILT PLAN AND SUBMITTED TO THE CONSULTANT UPON COMPLETION.
11. MULCH FOR TREES, SHRUBS AND RAIN GARDENS SHALL BE COARSE GRADE OAK OR MAPLE BARK AGED AT LEAST ONE YEAR AND UNIFORM IN COLOR AND TEXTURE.

MAINTENANCE AND WARRANTY PERIOD:

1. WARRANTY PERIOD: WARRANT THAT ALL TREES, SHRUBS, SEEDING, AND PLUG PLANTINGS INSTALLED UNDER THIS CONTRACT WILL BE HEALTHY AND IN FLOURISHING CONDITION OF ACTIVE GROWTH FOR ONE (1) FULL GROWING SEASON (APRIL THROUGH NOVEMBER) FROM DATE OF FINAL ACCEPTANCE. THE CONTRACTOR SHALL RESPOND WITHIN TWO (2) WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT OR REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.
2. ALL DELAYS IN COMPLETION OF PLANTING OPERATIONS WHICH EXTEND THE PLANTING INTO MORE THAN ONE PLANTING SEASON SHALL EXTEND THE WARRANTY PERIOD CORRESPONDINGLY.
3. REPLACEMENTS: AS SOON AS WEATHER CONDITIONS PERMIT, REPLACE, WITHOUT COST TO OWNER, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE CONSULTANT DURING AND AT THE END OF THE WARRANTY PERIOD.
4. PATCHY OR BARE AREAS (IN EXCESS OF 8 SQUARE FEET) WHERE SEED MIX FAILED TO CREATE SUFFICIENT DENSITY OF COVER SHALL BE RESEEDED BY HAND AT THE RECOMMENDED APPLICATION RATE AT NO ADDITIONAL COST TO OWNER.
5. INCORRECT MATERIALS: DURING WARRANTY PERIOD, REPLACE AT NO COST TO OWNER ALL PLANTS REVEALED AS BEING UNTRUE TO NAME. PROVIDE REPLACEMENTS OF A SIZE AND QUALITY TO MATCH THE PLANTED MATERIALS AT THE TIME THE MISTAKE IS DISCOVERED.
6. ALL PLANT STOCK SHALL BE WATERED BY THE CONTRACTOR TO ENSURE THE HEALTH AND VIGOR OF THE PLANTED MATERIALS. THE CONTRACTOR SHALL WATER AS NEEDED BASED ON NATURAL RAINFALL DURING THE WARRANTY PERIOD. WATERING SHALL CONTINUE SO SEEDLINGS DO NOT DRY OUT ONCE WATERING HAS BEGUN. THE WATERING SHALL BE DONE FROM SURFACE METHODS AT A PRESSURE NOT TO EXCEED THE INFILTRATION RATE OF THE SOIL, LIMITING RUNOFF DURING THE WATERING PERIOD. EACH AREA WILL BE WATERED WITH SUFFICIENT WATER TO COMPLETELY SATURATE THE ROOT ZONE. THE CONTRACTOR SHALL INSPECT ALL PLANTS FOR INSECT INFESTATION AND DAMAGE.
7. EROSION SHALL BE REPAIRED BY THE CONTRACTOR.
8. PROTECTION FROM TRAFFIC AND EROSION IN NEWLY SEEDED AREAS AND THE MITIGATION AREAS IS THE RESPONSIBILITY OF THE CONTRACTOR. SAFETY FENCES AND/OR OTHER BARRIER METHODS WITH APPROPRIATE SIGNAGE MAY BE USED FOR ONE YEAR FROM COMPLETION OF CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH THIS IS INCLUSIVE OF CONTRACTOR'S PRICING.
9. NOTIFY THE OWNER PRIOR TO AND FOLLOWING ANY MAINTENANCE ACTIVITY.
10. FINAL ACCEPTANCE OF WORK WILL BE SUBJECT TO ACCEPTANCE BY PROJECT MANAGER AND OWNER AT THE END OF GUARANTEE PERIOD.

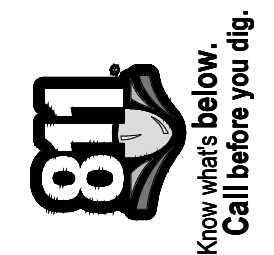
SEEDING:

1. SEED SHALL BE FRESH, CLEAN, NEW SEED OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION.
2. NATIVE SEED AREAS SHALL BE SEEDED AFTER MAY 1, (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AFTER OCTOBER 1, BUT BEFORE NOVEMBER 30 (OR PRIOR TO FREEZE-UP) OR AS DIRECTED BY CONSULTANT.
3. SEEDBED PREPARATION: CUT ANY EXISTING VEGETATION TO 4 (FOUR) INCH HEIGHT AND APPLY HERBICIDE AS NECESSARY. PRIOR TO SOWING NATIVE SEED, LIGHTLY SCARIFY SO THAT THE BED IS SMOOTH AND FREE OF LARGE CLUMPS. SEED BED SHALL BE FIRM, BUT NOT COMPACT. SEED IMMEDIATELY AFTER SCARIFYING. DO NOT FERTILIZE.
4. FOLLOW SEED SUPPLIER'S RECOMMENDATIONS FOR SEED INSTALLATION. SEEDING METHOD SELECTED SHALL ENSURE COMPLETE COVERAGE OF DESIGNATED AREA. RE-SEED AREAS WITH GAPS IN SEEDING AT NO ADDITIONAL COST TO OWNER.
5. DO NOT SOW SEED WHERE STANDING WATER IS PRESENT.
6. SOW NATIVE SEED AT A SPECIES RATE OF POUNDS PER ACRE INDICATED ON THE DRAWING. LIGHTLY RAKE TO INCORPORATE SEED INTO SOIL. DO NOT COVER SEED MORE THAN 1/4 INCH WITH SOIL. SEED DRILLING IS ALSO ACCEPTABLE.
7. MULCH: MATERIAL SHALL BE CLEAN SEED-FREE WHEAT OR OATS STRAW TO PROTECT SEEDED AREAS FROM INVASIVE SPECIES FREQUENTLY FOUND IN COMMON STRAW. MULCH SHALL NOT CONTAIN MORE THAN 35% MOISTURE BY WEIGHT AND MUST BE FREE OF SEEDS AND NOXIOUS WEEDS. COVER SEED WITH A MAXIMUM 1 INCH STRAW MULCH LAYER. WHERE NECESSARY OR AS DIRECTED BY CONSULTANT, INCLUDE MULCH TAKCIFIER. ALWAYS APPLY SEED BEFORE MULCHING.
8. CONTRACTOR SHALL REPAIR DAMAGED VEGETATION AND AERATE SOIL OVER ROOT ZONE OF NEGATIVELY IMPACTED VEGETATION. RE-SEED ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS.

SITE RESTORATION AND CLEAN-UP:

1. IMMEDIATELY CLEAN UP EXCESS SOIL, MULCH, OR OTHER DEBRIS AND PROPERLY DISPOSE OF DELETERIOUS MATERIALS LEGALLY OFF-SITE IN A MANNER CONSISTENT WITH LOCAL LAWS. TAKE NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION OF CLEAN AREAS AS A RESULT OF CLEANING OPERATIONS.
2. PROMPTLY REMOVE EQUIPMENT AND UNUSED MATERIALS AT COMPLETION OF ACTIVITIES.
3. INSTALL FENCING AND/OR BARRIERS AROUND MITIGATION AREAS TO PREVENT INTRUSION BY FOOT TRAFFIC AND ON-GOING CONSTRUCTION ACTIVITIES.
4. RETURN STOCKPILE AND STORAGE AREAS TO THEIR ORIGINAL GRADE AND RESTORE GROUND SURFACES AFTER STORED MATERIAL HAS BEEN REMOVED.
5. CONTRACTOR SHALL REPAIR DAMAGED VEGETATION AND AERATE SOIL OVER ROOT ZONE OF NEGATIVELY IMPACTED VEGETATION. RE-SEED ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS.

Stormwater Volumes						
Stormwater Runoff Area	Drainage Area		Calculated 1st Flush Runoff Volume	Basin	Volume Required to Capture 1st Flush	Volume Provided
	Square Feet	Acreage				
1	370,250	8.5	15,428	A	18,913	~14,264
2	83,635	1.9	3,485			



REV.	DESCRIPTION	DATE	AK	ABPJ	CHECKED
1	FOR BID	11-16-2017	AK	ABPJ	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-1667
ANN ARBOR: 734.769.4410
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ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE: NO SCALE

DRAWING No. NOTES

PREPARED BY:
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2200 Commonwealth Boulevard, Suite 300
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Phone: 734.769.3004
Fax: 734.769.31664

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real property, and the like shall not be blocked except for short durations and only when approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.
2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.
3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.
4. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.
5. During non-working hours no trench shall remain open; any open trench shall be properly secured with protective fencing. This work shall be included in the item of work "General Conditions".
6. Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Public Works requirements.
7. City of Ann Arbor Public Works will install the corporation and copper service lead(s) to transfer the connection(s). If an existing water service is found to be failing or is not copper, the lead will be replaced to the curb box by Public Works.
8. For the installation of corporations, or any other related activities, the Contractor shall not receive additional compensation for delays due to the scheduling of or coordination with the City of Ann Arbor Public Works.
9. The Contractor shall backfill trenches in accordance with Trench Detail specified on plans. This work shall be included in the item of work "Excavate and Backfill for Water Service Tap and Lead". All concrete removals and replacements required for this work will be paid for separately.
10. All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5.
11. Cor-blw bolts to be used at all mechanical water main joints at hydrants and Megalug fittings
12. The Contractor shall construct, flush, and bacteriologically test the water main per Detailed Specification, "Water Main Installation and Testing" and as approved by the Engineer. All chlorinated water shall be discharged directly into an approved sanitary sewer. The Contractor shall supply all necessary hoses, fittings and the like to accomplish this work.
13. Water main fittings, other than those specifically listed as separate pay items, which are required to complete the work, such as blow-off assemblies, concrete thrust blocks, solid sleeves and mechanical plugs, shall not be paid for separately, but shall be included in the pipe pay items.
14. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.
15. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.

16. All fittings, hydrants, valves and castings removed during construction are the property of the City of Ann Arbor. The Contractor within 48 hours shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
17. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
18. The Contractor shall be responsible for the continuous maintenance of the temporary road surface and soil erosion control measures within the construction area until the full completion of the project. This work shall be included in the item of work "General Conditions".
19. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
20. Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
21. The location of material stock piles and on-site staging areas to be approved by the Engineer.
22. For mainline paving, the width of the mat for each pass of the paver shall be not less than 10.5' or greater than 15', as directed by the Engineer. The Engineer will direct the layout of the longitudinal joints during construction.
23. All structures shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
24. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
25. Where sewer pipes of different sizes or materials are joined, Fernco flexible couplings with stainless steel shear rings shall be used. The Contractor's purchase price for these devices, including shipping, shall be paid as an extra. Prior to payment for this item, the Contractor shall submit receipts for the Engineer's review and approval. All other costs associated with the installation of these devices shall be included in the payment for the sewer.
26. Where sewer and water main are to be removed & replaced or added, all pipe shall be installed using Trench Detail detailed in the specifications or shown on Plans. Backfill for sewer and water construction shall be MDOT Granular Material, Class II, Modified.
27. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re-set in locations as directed by the Engineer. This work will not be paid for separately, but shall be included in "Machine Grading, Modified"
28. In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD-TD-11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2' below top of proposed pavement.

GENERAL

NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
5. ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.
6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.
7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLATIVE AS REQUIRED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

SEQUENCE OF EROSION CONTROL MEASURES:

1. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.
- 1.1. INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
- 1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.
- 1.3. COMPLETE REQUIRED DITCHING FROM MALLETT'S CREEK TO STONE SCHOOL ROAD.
- 1.4. INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.
- 1.5. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).
- 1.6. COMPLETE MALLETT'S CREEK WORK OPERATIONS IN ACCORDANCE WITH CONSTRUCTION SEQUENCE CONTAINED WITHIN THE SPECIAL PROVISION ENTITLED "MAINTAINING TRAFFIC AND CONSTRUCTION METHOD AND SEQUENCING" CONTAINED IN THE CONTRACT PROPOSAL.
- 1.7. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.
- 1.8. COMPLETE ALL BIORETENTION GRADING AND FINE GRADING.
- 1.9. TEMPORARY SEED AND INSTALL EROSION CONTROL BLANKET IN ALL DISTURBED AREAS.
- 1.10. REFER TO LANDSCAPE PLANTING PLANS FOR PERMANENT SITE STABILIZATION.
- 1.11. CLEAN OUT STORM SEWER SYSTEMS.
- 1.12. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.
- 1.13. ALL TEMP. SOIL EROSION CONTROL MEASURES MUST BE REMOVED, WITH ENGINEERS APPROVAL, PRIOR TO FINAL INSPECTION

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL.

TEMPORARY SEEDING:

1. SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.
2. ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = \$xxx,xxx

ESTIMATE OF EXCAVATION AND FILL FROM EXISTING TO FINAL GRADE:

- EXCAVATION = 6240 CY, FILL = 6799 CY

ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:

- Sb - SEBEWA LOAM - IN DEPRESSION AREAS, BROAD LOW-LYING AREA, AND DRAINAGEWAYS OF OUTWASH PLAINS, VALLEY TRAINS, AND TERRACES. SLOPE IS 0% TO 2%.
- FoB - FOX SANDY LOAM - IN UPLAND AREAS AND ON OUT WASH PLAINS, KAMES, VALLEY TRAINS, TERRACES, AND MORAINES. SLOPES ARE UNIFORM OR SHORT AND COMPLEX.
- MdA - MATHERTON SANDY LOAM - IN DEPRESSION AREAS, BROAD LOW-LYING AREAS, AND ALONG DRAINAGEWAYS, OUTWASH PLAINS, VALLEY TRAINS, AND TERRACES. NEARLY LEVEL TO GENTLY SLOPING.
- MfA - METAMORA SANDY LOAM - IN DEPRESSION AREAS, BROAD, LOW-LYING AREAS, AND ALONG DRAINAGEWAYS OF TILL PLAINS AND MORAINES.
- NdB - NAPPANEE SILTY CLAY LOAM - ON FOOT SLOPES AND ALONG DRAINAGEWAYS OF TILL PLAINS, MORAINES, AND LAKE PLAINS. NEARLY LEVEL TO GENTLY SLOPING.

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
* NO COST TO CONTRACTOR	

PERMITS REQUIRED TO BE OBTAINED BY THE CITY OF ANN ARBOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
M.D.E.Q. WATER MAIN CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
M.D.E.Q. SANITARY SEWER CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		
SANITARY		
STORM	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
FORESTRY		
SIGNS SIGNALS STREET LIGHTS		(734) 794-6361
PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE. YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	CLAY COMBEE (734) 397-4112
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	(734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016



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**CITY OF ANN ARBOR
PUBLIC SERVICES**
301 EAST HURON STREET
PO BOX 866
ANN ARBOR MI 48107-0867
www.a3gov.org



ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

ANN ARBOR STANDARD NOTES

SCALE
NO SCALE
DRAWING No.

PREPARED BY:
ECT Environmental Consulting & Technology, Inc.
2200 Commonwealth Boulevard, Suite 300
Ann Arbor, Michigan 48105
Phone: 734.769.3004
Fax: 734.769.31664

GENERAL
 NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

- THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
- EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR

WATERWAYS.

- ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.
- RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.
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REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.

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SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

- INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
- STRIP AND STOCKPILE TOPSOIL.

STABILIZE STOCKPILE AS REQUIRED.

- COMPLETE REQUIRED DITCHING FROM MALLET'S CREEK TO STONE SCHOOL ROAD.
- INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.
- PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).
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- TEMPORARY SEED AND INSTALL EROSION CONTROL BLANKET IN ALL DISTURBED AREAS.
- REFER TO LANDSCAPE PLANTING PLANS

FOR PERMANENT SITE STABILIZATION.

- CLEAN OUT STORM SEWER SYSTEMS.
- REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.
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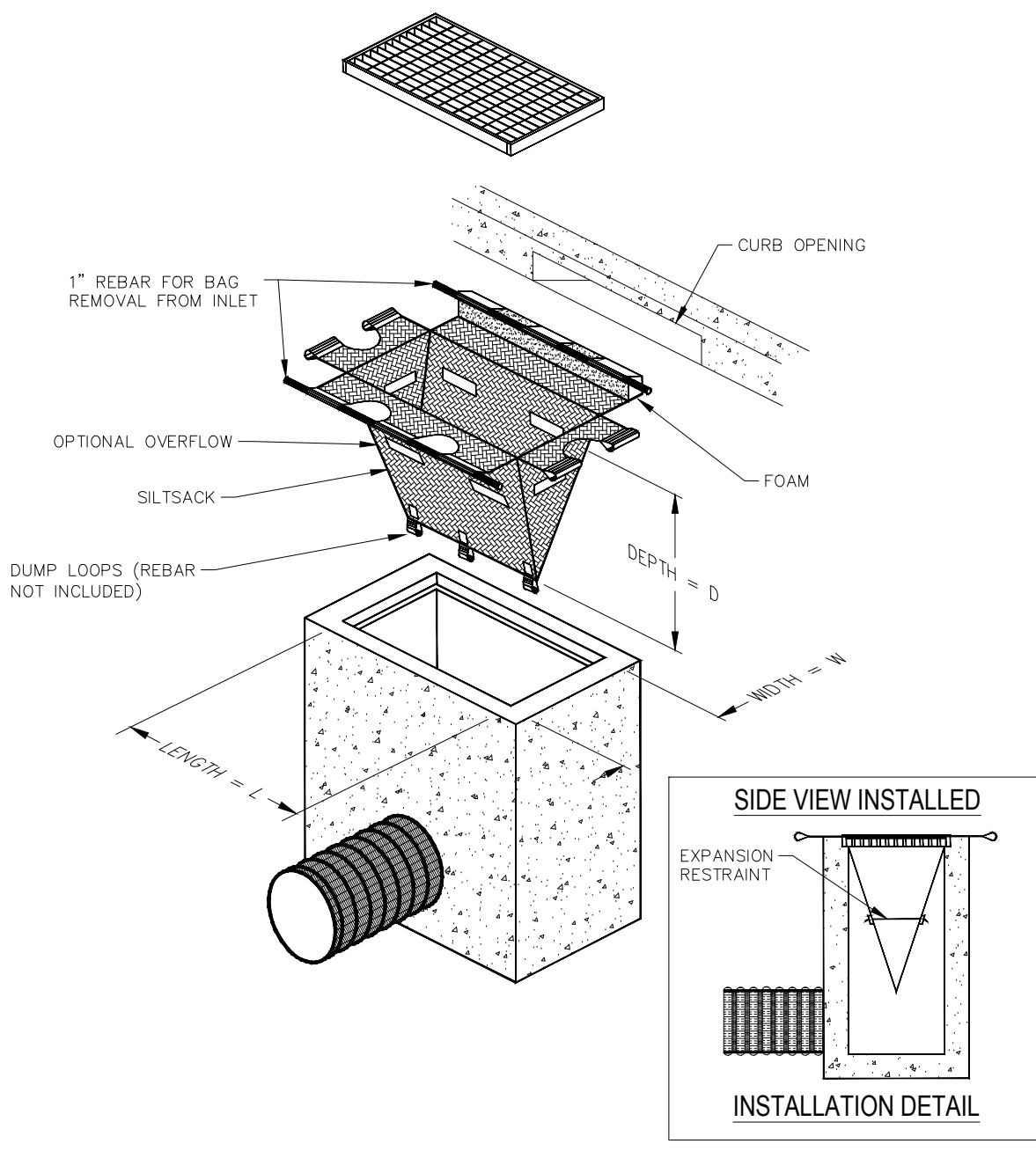
THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = \$xxx,xxx

ESTIMATE OF EXCAVATION AND FILL FROM EXISTING TO FINAL GRADE:

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ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:

- Sb - SEBEWA LOAM - IN DEPRESSION AREAS, BROAD LOW-LYING AREA, AND DRAINAGEWAYS OF OUTWASH PLAINS, VALLEY TRAINS, AND TERRACES. SLOPE IS 0% TO 2%.
- FoB - FOX SANDY LOAM - IN UPLAND AREAS AND ON OUT WASH PLAINS, KAMES, VALLEY TRAINS, TERRACES, AND MORAINES. SLOPES ARE UNIFORM OR SHORT AND COMPLEX.
- MdA - MATHERTON SANDY LOAM - IN DEPRESSION AREAS, BROAD LOW-LYING AREAS, AND ALONG DRAINAGEWAYS, OUTWASH PLAINS, VALLEY TRAINS, AND TERRACES. NEARLY LEVEL TO GENTLY SLOPING.
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- NaB - NAPPANEE SILTY CLAY LOAM - ON FOOT SLOPES AND ALONG DRAINAGEWAYS OF TILL PLAINS, MORAINES, AND LAKE PLAINS. NEARLY LEVEL TO GENTLY SLOPING.



SILTSACK DETAIL

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW SILTSACK
 (FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUNOFF)

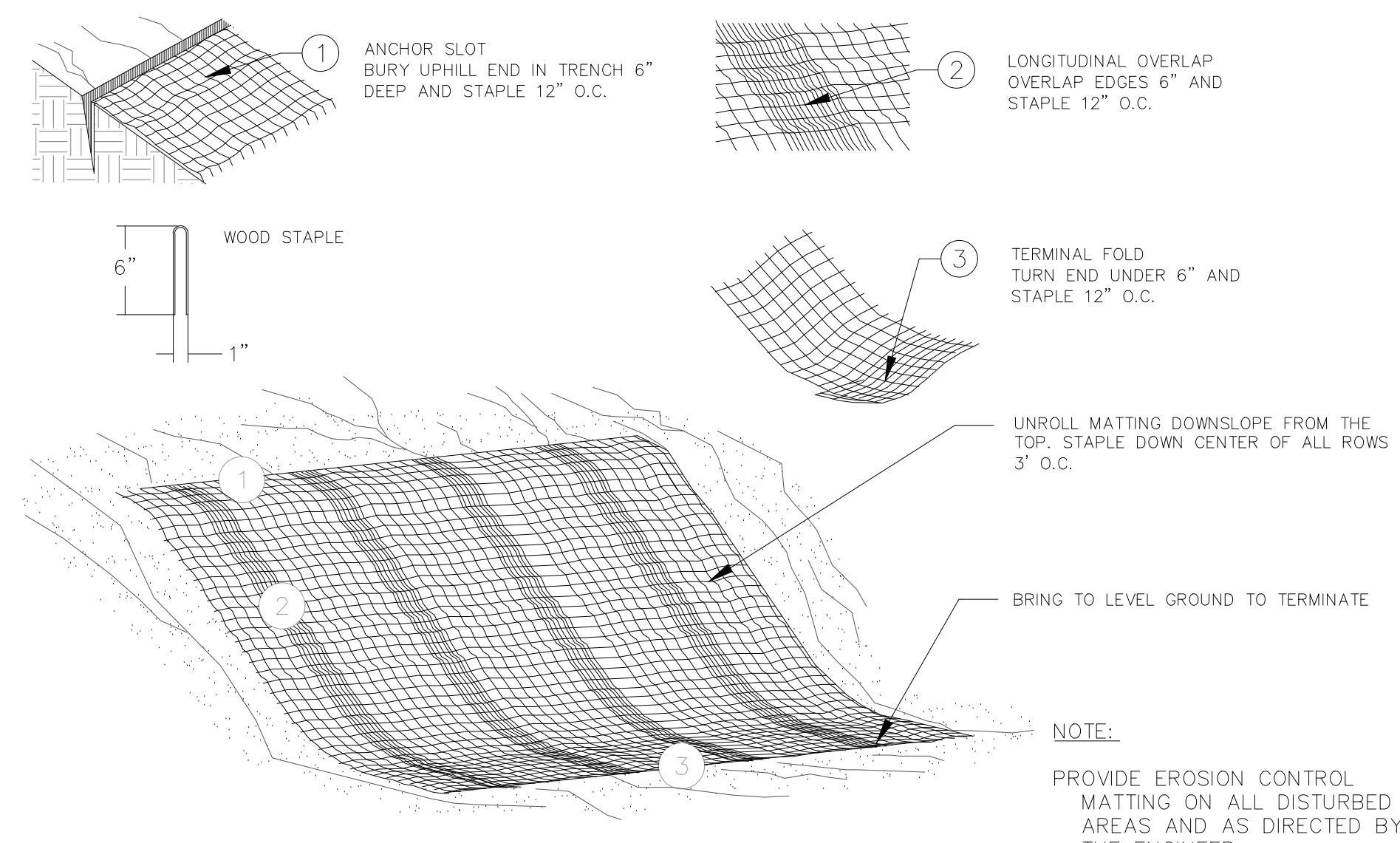
PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC-1

HI-FLOW SILTSACK
 (FOR AREAS OF MODERATE TO HIGH PRECIPITATION AND RUNOFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC-1

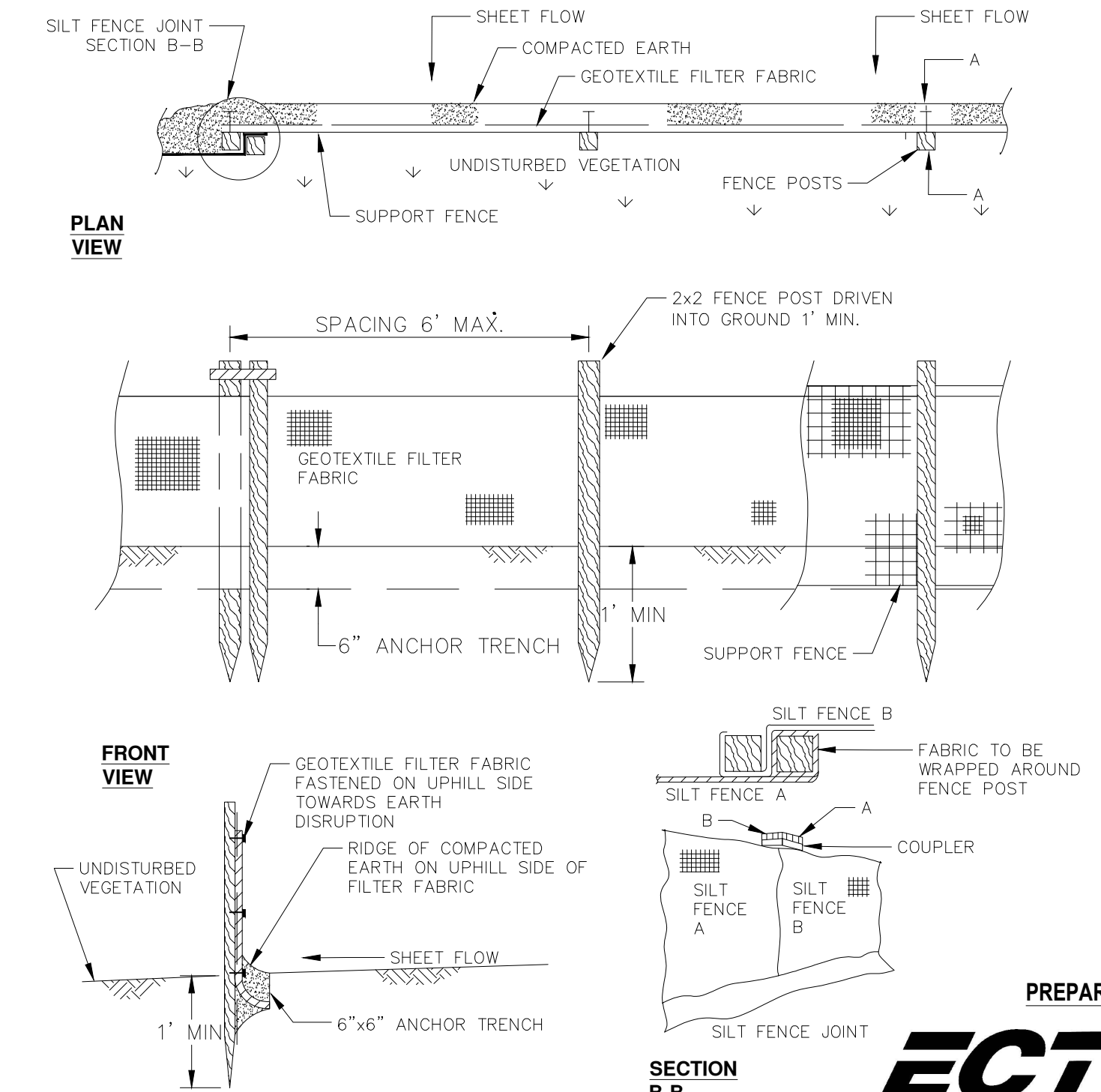
OIL-ABSORBANT SILTSACK
 (FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUNOFF OR SPILLS)

IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR INSTALL THE REBAR AS SHOWN IN THIS DETAIL TO PROVIDE A FULLY FUNCTIONING UNIT. ALL COSTS ASSOCIATED WITH FURNISHING, CLEANING AS MANY TIMES AS REQUIRED, DISPOSAL OF SEDIMENT, AND REMOVING THE INLET FILTER WHEN NO LONGER NEEDED IS INCLUDED IN THE ITEM OF WORK AND WILL NOT BE PAID FOR SEPARATELY.




MULCH BLANKET DETAIL

APPLIES TO ALL AREAS TO BE PERMANENTLY RESTORED WITH GRASS. SEE LANDSCAPE PLANS FOR MORE DETAILS.




SILT FENCE SD-EC-3

PREPARED BY:
ECT Environmental Consulting & Technology, Inc.
 2200 Commonwealth Boulevard, Suite 300
 Ann Arbor, Michigan 48105
 Phone: 734.769.3004
 Fax: 734.769.31664



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Call before you dig.

NO.	FOR BID	DATE	DESCRIPTION	REV.
1	FOR BID	11-16-2017	DESCRIPTION	REV.



CITY OF ANN ARBOR
PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1000
 PHONE: 734.769.4410
 WWW.A2GOV.ORG

ENGINEERING - PUBLIC SERVICES - CITY OF ANN ARBOR

ANN ARBOR STANDARD NOTES

NO SCALE

DRAWING NO.

SHEET NO.

13 OF 13