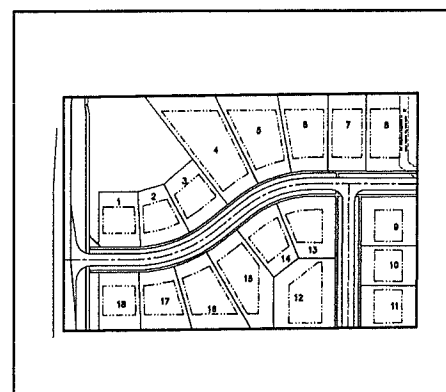


SITE CONDOMINIUM COMMUNITY SITE PLANS
 IN SECTION 27, T3N, R11E, ROCHESTER HILLS,
 OAKLAND COUNTY, MICHIGAN

PRELIMINARY
 NOT FOR CONSTRUCTION



Know what's below.
 Call before you dig.



SITE PLAN

N.T.S.



LOCATION MAP

SCALE: 1" = 2000'

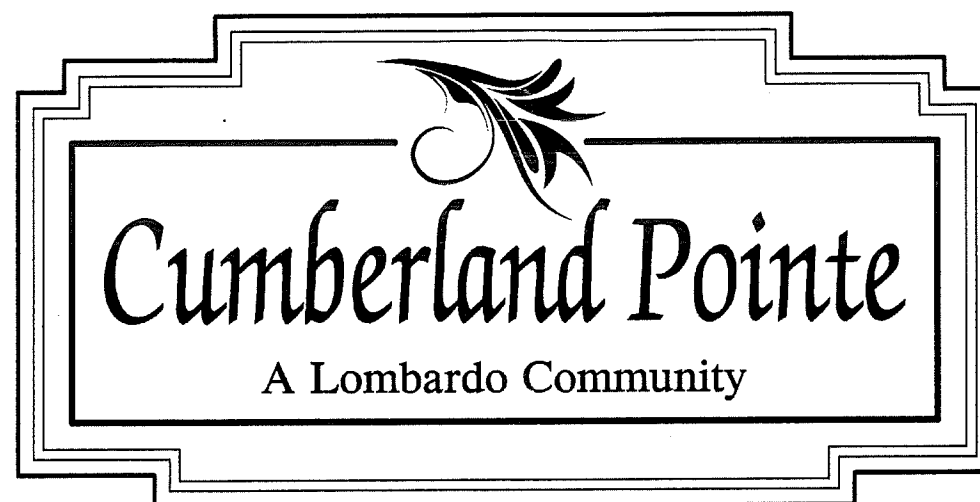
LEGAL DESCRIPTION:

PARCEL 15-27-151-003

PART OF THE NORTHWEST 1/4 OF SECTION 27, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN. BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 27, THENCE S00°00'00"E 2070.84' ALONG THE WEST LINE OF SAID SECTION 27 TO THE POINT OF BEGINNING; THENCE PROCEEDING S00°00'00"E 533.88' ALONG THE WEST LINE OF SAID SECTION 27 TO A POINT; THENCE N89°29'30"E 815.63' (AS RECORDED) AND N89°29'30"E 815.40' (AS MEASURED) TO A POINT ON THE WEST LINE OF CUMBERLAND HILLS SUB. NO. 3' A PLAT RECORDED IN LIBER 107 OF PLATS, ON PAGES 40-43 OF OAKLAND COUNTY RECORDS; THENCE N00°24'45"E 534.02' (AS RECORDED) AND N00°24'56"E 533.93' (AS MEASURED) ALONG THE WEST LINE OF SAID CUMBERLAND HILLS SUB. NO. 3' TO A POINT; THENCE S89°29'30"W 817.36' (AS RECORDED) AND S89°29'30"W 817.27' (AS MEASURED) TO THE POINT OF BEGINNING.

CONTAINING 9.993 ACRES (GROSS AREA).
 RESERVED THEREFROM ALL EASEMENTS AND RIGHT OF WAYS OF RECORD.

(LEGAL DESCRIPTION FROM A CERTIFICATE OF SURVEY BY HOUSTON KENNEDY, 1/19/2004)



DEVELOPER:

LOMBARDO HOMES
 (586) 781-2364

51237 DANVIEW TECHNOLOGY COURT, SHELBY TOWNSHIP, MI 48315

ENGINEER:

COMMUNITY E.S., INC.
 CIVIL ENGINEERING & SURVEYING
 (586) 677-4081

6303 26 MILE ROAD, STE. 110, WASHINGTON, MI 48094

LANDSCAPE ARCHITECT:

DONALD C. WESTPHAL ASSOCIATES L.L.C.
 LANDSCAPE ARCHITECTS AND SITE PLANNERS
 (248) 651-5518

71 N. LIVERNOIS, SUITE A, ROCHESTER HILLS, MI 48307

LEGEND

SANITARY SEWER	---
STORM SEWER	----
WATER MAIN	----
EXISTING MAJOR CONTOUR	-----
EXISTING MINOR CONTOUR	-----
EXISTING SPOT GRADE	-----
PROPOSED SPOT GRADE	----- 836.30
PROPOSED MANHOLE	○
EXISTING CATCH BASIN AND MANHOLE AS NOTED	○
PROPOSED R.Y.C.B.	⊗
EXISTING PAVEMENT CATCH BASIN	□
PROPOSED PAVEMENT CATCH BASIN	■
EXISTING GATE VALVE	⊗
PROPOSED GATE VALVE	⊗
EXISTING HYDRANT	⊗
PROPOSED HYDRANT	⊗
SIGN	+
UTILITY POLE	⊗
DRAINAGE ARROW	→
EXISTING FENCE	— — —
CL ROAD OR DITCH AS NOTED	— — —
TREE/BRUSH LINE	~~~~~
TC= TOP OF CURB	
GU= GUTTER	
THIS TEXT TYPE (HWS) DENOTES EXISTING	

SHEET INDEX:

0 OF 9	COVER SHEET
1 OF 9	SITE PLAN
2 OF 9	TOPOGRAPHY SURVEY
3 OF 9	UTILITY PLAN
4 OF 9	GRADING PLAN
5 OF 9	DETAILS
6 OF 9	R.O.W. IMPROVEMENTS
7 OF 9	TREE PRESERVATION PLAN
8 OF 9	LANDSCAPE PLAN
9 OF 9	LANDSCAPE DETAILS



donald c. westphal
 ASSOCIATES, L.L.C.
 landscape architects & site planners
 71 N. Livernois, Suite A, Rochester Hills, MI 48307
 (248) 651-5518

DATE: 3/11/2011
 REVISION: 5/17/2011 PER CITY REVIEW
 COMMENTS: 7/11/2011 PER CITY REVIEW
 COMMENTS:
 DRAWN BY: J.R. DRAWING #: 1050

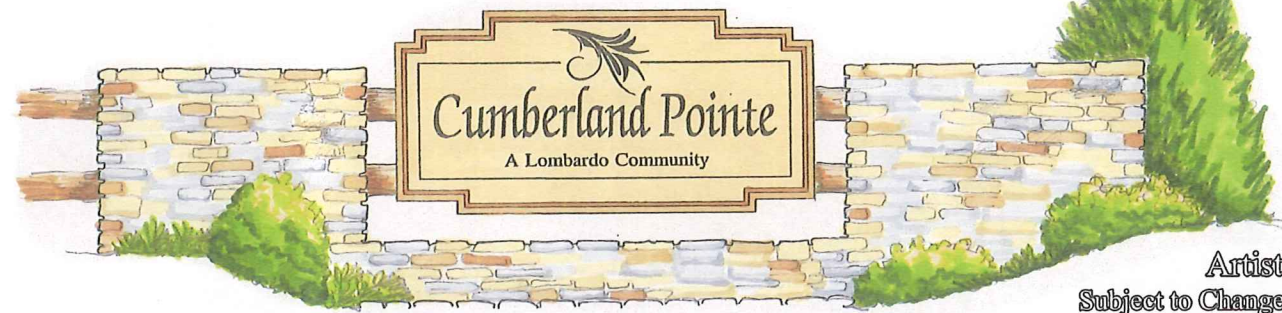
SHEET No.

0 OF 9

CITY FILE # 14-001



CRANBROOK
CUSTOM ♦ HOMES



Artist's Rendering
Subject to Change - June 4, 2014

NORTHWEST CORNER,
SECTION. 27, T.3N., R.11E.,
CITY OF ROCHESTER HILLS.

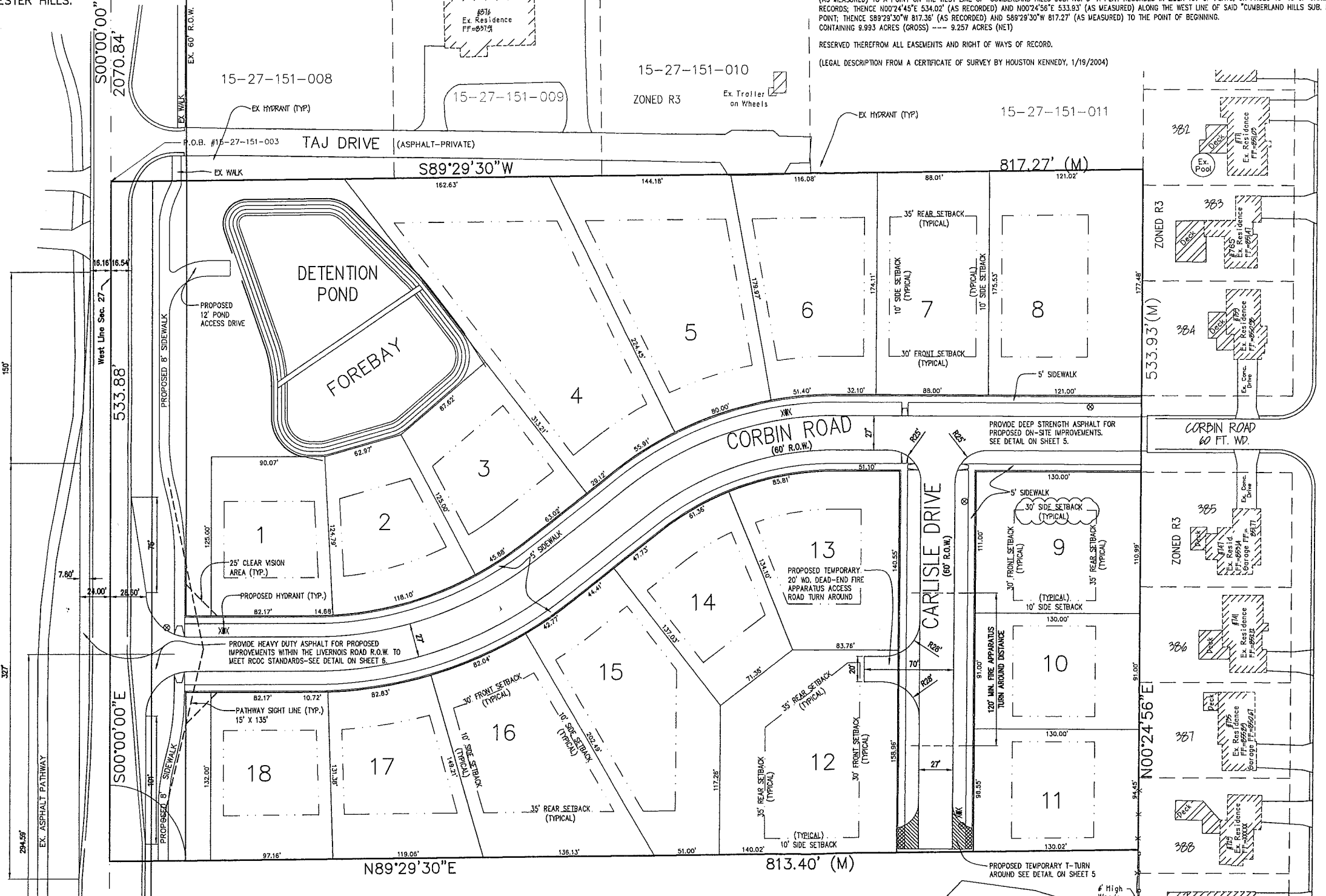
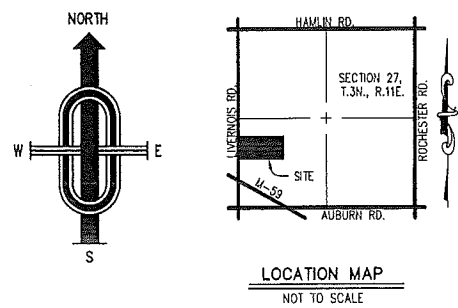
LIVERNOIS ROAD
(60' 1/2 R.O.W.)

ROCHELLE
PARK DR.
WEST 1/4 CORNER,
SECTION. 27, T.3N., R.11E.,
CITY OF ROCHESTER HILLS.

LEGAL DESCRIPTION: PARCEL 15-27-151-003

PART OF THE NORTHWEST 1/4 OF SECTION 27, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN. BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 27, THENCE S00°00'00"E 2070.84' ALONG THE WEST LINE OF SAID SECTION 27 TO THE POINT OF BEGINNING; THENCE PROCEEDING S00°00'00"E 533.88' ALONG THE WEST LINE OF SAID SECTION 27 TO A POINT; THENCE N89°29'30"E 813.40' (AS MEASURED) AND N89°29'30"E 813.40' (AS MEASURED) TO A POINT ON THE WEST LINE OF "CUMBERLAND HILLS SUB. NO. 3" A PLAT RECORDED IN LIBER 107 OF PLATS, ON PAGES 40-43 OF OAKLAND COUNTY RECORDS; THENCE N00°24'56"E 533.93' (AS RECORDED) AND N00°24'56"E 533.93' (AS MEASURED) ALONG THE WEST LINE OF SAID "CUMBERLAND HILLS SUB. NO. 3" TO A POINT; THENCE S89°29'30"W 817.36' (AS RECORDED) AND S89°29'30"W 817.27' (AS MEASURED) TO THE POINT OF BEGINNING. CONTAINING 9.993 ACRES (GROSS) ---- 9.257 ACRES (NET)

RESERVED THEREFROM ALL EASEMENTS AND RIGHT OF WAYS OF RECORD.
(LEGAL DESCRIPTION FROM A CERTIFICATE OF SURVEY BY HOUSTON KENNEDY, 1/19/2004)



LOT SIZE VARIATION TABLE

LOT	WIDTH	DEPTH	AREA
1	93.18'	125.00'	11,681 SF
2	93.72'	125.00'	11,485 SF
3	100.09'	125.00'	12,614 SF
4	95.60'	266.37'	29,534 SF
5	95.10'	196.28'	21,495 SF
6	90.00'	173.68'	17,427 SF
7	88.00'	174.82'	15,384 SF
8	121.00'	174.82'	21,354 SF
9	111.00'	130.00'	14,430 SF
10	91.00'	130.00'	11,830 SF
11	95.67'	110.00'	12,415 SF
12	144.05'	140.02'	21,177 SF
13	98.58'	140.55'	15,324 SF
14	95.27'	137.29'	12,318 SF
15	91.00'	194.79'	19,444 SF
16	89.96'	170.58'	17,857 SF
17	90.84'	136.43'	13,790 SF
18	93.67'	132.00'	12,504 SF
AVERAGE	98.77'	154.58'	16,225 SF

NOTES: IN SOME CASES (WHERE THE LOT HATCHINGS TO THE REAR) THE LOT WIDTH WAS MEASURED AT A POINT 24' BACK FROM THE FRONT YARD SETBACK.

PREPARED FOR:
GREG WINDINGLAND
LOBVARDO HOMES
5123 DANVIEW TECHNOLOGY PARK DRIVE
SHELBY TOWNSHIP, MI 48315
(588) 781-2384
greg@windongland.com

PREPARED BY:
COMMUNITY E.S., INC.
C/O RICHARD HODSDON, P.E. #48078
6303 26 MILE ROAD, STE. 110
WASHINGTON, MI 48394
PH: (588) 677-4081
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REV. 7/8/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/28/14 FORMAL SUBMITAL TO CITY.



COMMUNITY
CIVIL ENGINEERING & SURVEYING

DATE Aug. 23, 2013 SCALE 1" = 40'
DRAWN BY J.M.B. SHEET 1 OF 9
CHECKED BY R.S.H. DRAWING Z-13-037

NOTES:
FLOOD PLAIN REQUIREMENTS:
BASED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CITY OF ROCHESTER HILLS, ACCORDING TO COMMUNITY PANEL NUMBER 28125C0394F, DATED SEPTEMBER 29, 2006 A 100-YEAR FLOODPLAIN DOES NOT AFFECT THIS PROPERTY.

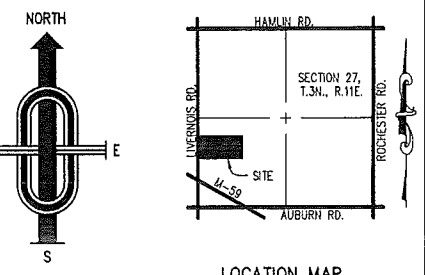
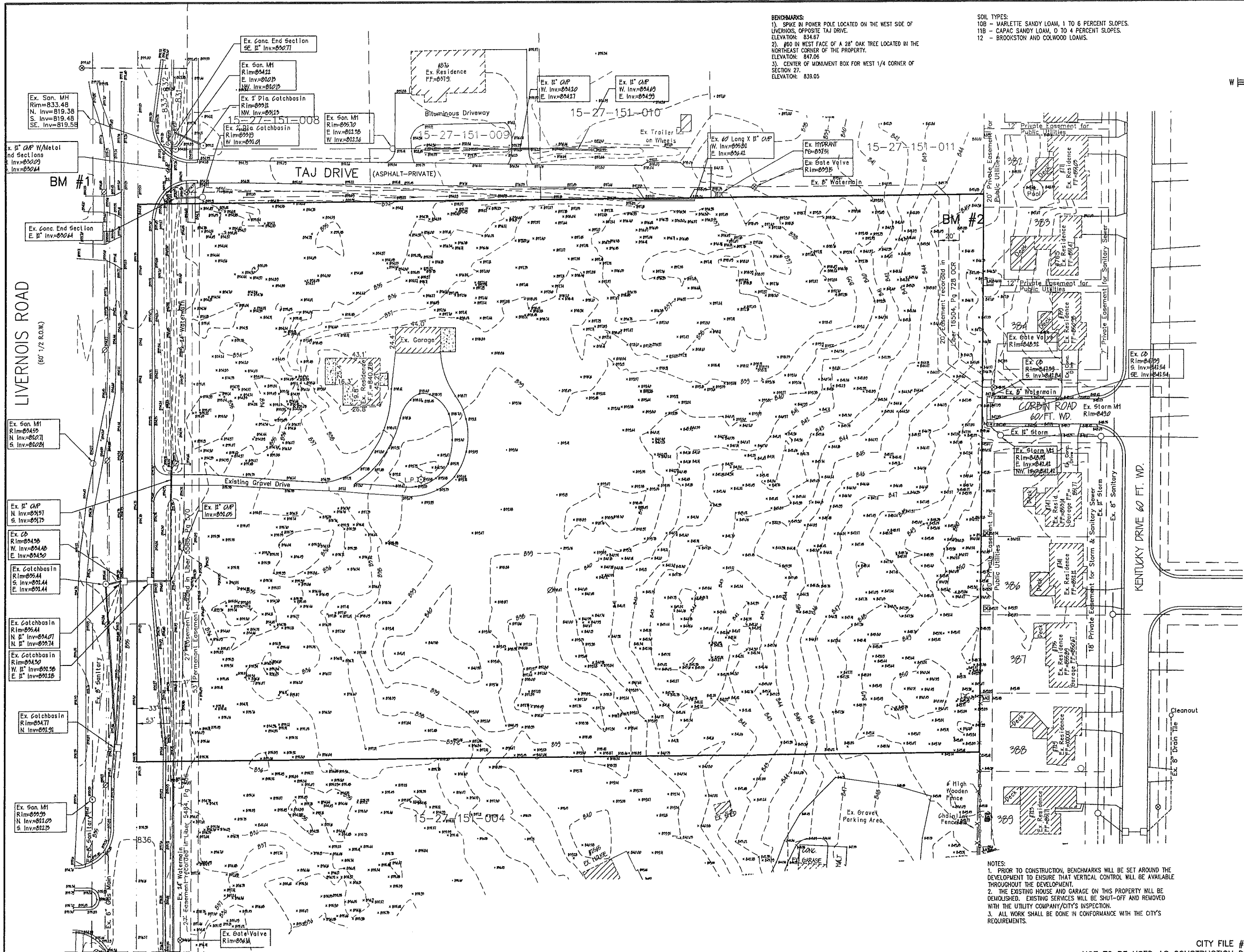
ZONING REQUIREMENTS:
THIS PROPERTY IS ZONED R3 - ONE FAMILY RESIDENTIAL ZONING DISTRICT. BASED ON THE ROCHESTER HILLS ZONING ORDINANCE, THE FOLLOWING REQUIRED SETBACKS APPLY:
MINIMUM WIDTH 90 FEET
MINIMUM AREA 12,000 SF
FRONT YARD SETBACK 30 FEET
SIDE YARD SETBACK 10 FEET (20' TOTAL)
REAR YARD SETBACK 35 FEET
MAXIMUM HEIGHT 2 STORIES
MINIMUM FLOOR AREA 1,200 SF
MAXIMUM BUILDING COVERAGE 30%

NOTES:
1. THE DEVELOPER IS PROPOSING AN 18 UNIT SITE CONDOMINIUM.
2. ALL SIGNAGE SHALL BE IN CONFORMANCE WITH THE CITY OF ROCHESTER HILLS REQUIREMENTS. A SEPARATE SIGN PERMIT MUST BE OBTAINED FROM THE BUILDING DEPARTMENT.
3. THE DEVELOPER WILL DEDICATE THE PROPOSED RIGHT-OF-WAY FOR CORBIN ROAD.
4. THE PROPOSED ROADS WITHIN THIS DEVELOPMENT WILL BE PAVED WITH 3" MOUNTABLE CONCRETE CURB AND GUTTERS.
5. CARLISLE DRIVE T-TURN AROUND AND FIRE T-TURN AROUND ARE TEMPORARY AND WILL BE REMOVED IF CARLISLE DRIVE IS EVER EXTENDED SOUTH.
6. CARLISLE DRIVE TEMPORARY FIRE T-TURN AROUND SHALL MEET DIMENSIONS AS SHOWN IN IFC 2006, FIGURE D103.1 FOR APPROVED TURN AROUND DETAILS.

FIRE DEPARTMENT NOTES:
1. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
2. OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. FIRE PREVENTION ORDINANCE CHAPTER 58, SEC. 307.6.2 & 307.6.2.3.

CITY FILE #14-001
NOT TO BE USED AS CONSTRUCTION DRAWINGS

PRELIMINARY SITE PLAN



LOCATION MAP
NOT TO SCALE

- LEGEND**
- △ CONTROL POINT
 - XX FIRE HYDRANT
 - GATE WELL OR D-BOX
 - MANHOLE AS NOTED
 - PAVEMENT CATCH BASIN
 - UTILITY POLE
 - ▲ GUY WIRE BASE
 - △ SIGN
 - LIGHT POLE
 - FOUND IRON (F.I.) OR FOUND PIPE (F.P.)
 - EXISTING FENCE
 - CL ROAD OR DITCH AS NOTED
 - TREE/BUSH LINE
 - EA- EDGE OF ASPHALT
 - EC- EDGE OF CONCRETE
 - TC- TOP OF CURB
 - QU- GUTTER
 - TB- TOP OF BANK
- THIS TEXT TYPE (HYP) DENOTES EXISTING

NOTE:
THIS DRAWING IS BASED ON A KENNEDY SURVEYING DRAWING (NO. 03-57542, JOB NO. 03-5754). ADDITIONAL WORK HAS BEEN DONE SINCE TO VERIFY THE ACCURACY AND UPDATE ANY IMPROVEMENTS SINCE THEN.

REV. 7/8/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/28/14 FORUMAL SUBMITTAL TO CITY.



COMMUNITY
CIVIL ENGINEERING & SURVEYING

1302 S. WIS. ROAD, SUITE 110
MADISON, TN, 37115
TELEPHONE (561) 417-4511
WWW.COMMUNITYENG.COM

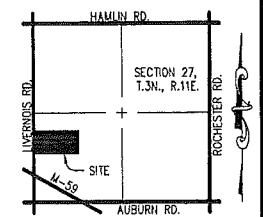
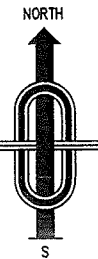
CUMBERLAND POINT
PART OF THE NORTHWEST 1/4 OF
SECTION 27, T.3N., R.11E.
CITY OF ROCHESTER HILLS,
OAKLAND COUNTY, MICHIGAN.

DATE Aug. 23, 2013 SCALE 1"=40'
DRAWN BY J.M.B. SHEET 2 OF 9
CHECKED BY R.S.H. DRAWING Z-13-037

TOPOGRAPHIC SURVEY

- NOTES:**
1. PRIOR TO CONSTRUCTION, BENCHMARKS WILL BE SET AROUND THE DEVELOPMENT TO ENSURE THAT VERTICAL CONTROL WILL BE AVAILABLE THROUGHOUT THE DEVELOPMENT.
 2. THE EXISTING HOUSE AND GARAGE ON THIS PROPERTY WILL BE DEMOLISHED. EXISTING SERVICES WILL BE SHUT-OFF AND REMOVED WITH THE UTILITY COMPANY/CITY'S INSPECTION.
 3. ALL WORK SHALL BE DONE IN CONFORMANCE WITH THE CITY'S REQUIREMENTS.

CITY FILE #14-001
NOT TO BE USED AS CONSTRUCTION DRAWINGS



LOCATION MAP
NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES.
2. SEE SHEET 5 FOR PRELIMINARY SIZING CALCULATIONS FOR THE PROPOSED CULVERT AT THE ENTRANCE OFF OF LIVERNOIS ROAD.
3. THE STORM SEWER OUTLETTING FROM THE DETENTION BASIN WILL BE SIZED TO ACCOMMODATE THE UN-RESTRICTED FLOW FOR THE 10-YEAR STORM FROM THE OFFSITE AREAS TO THE SOUTH. COMPLETE COMPUTATIONS WILL BE PROVIDED ON THE ENGINEERING PLANS.
4. A PERMIT IS REQUIRED FROM THE ROAD COMMISSION FOR OAKLAND COUNTY FOR THE CONNECTION TO THE ROADSIDE DITCH ALONG LIVERNOIS ROAD.
5. FINAL CONSTRUCTION PLANS SHALL INCLUDE PLAN AND PROFILE VIEWS AND HYDRAULIC GRADE LINE FOR ALL STORM LINES. CROSS-SECTIONS, SLOPES, ETC. SHALL BE PROVIDED FOR ALL EXISTING AND PROPOSED OPEN DRAINAGE COURSES. DESIGN CALCULATIONS SHALL BE PROVIDED FOR ALL DRAINAGE FACILITIES PROPOSED AND EXISTING.
6. THE MINIMUM STORM SEWER PIPE SIZE WILL BE 12" DIAMETER.
7. A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT IS REQUIRED.

LEGEND

- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SPOT GRADE
- PROPOSED SPOT GRADE
- PROPOSED MANHOLE
- EXISTING CATCH BASIN AND MANHOLE AS NOTED
- PROPOSED R.Y.C.B.
- EXISTING PAVEMENT CATCH BASIN
- PROPOSED PAVEMENT CATCH BASIN
- EXISTING GATE VALVE
- PROPOSED GATE VALVE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- STORM SEWER STRUCTURE NO.
- SIGN
- UTILITY POLE
- DRAINAGE ARROW
- EXISTING FENCE
- CL ROAD OR DITCH AS NOTED
- TREE/BRUSH LINE
- TC= TOP OF CURB
- GU= GUTTER
- THIS TEXT TYPE (N/A) PAVING EXISTING

REV. 7/8/14 PER CITY REVIEW COMMENTS
 REV. 5/23/14 PER CITY REVIEW COMMENTS
 REV. 2/25/14 FORUM SUBMITTAL TO CITY.



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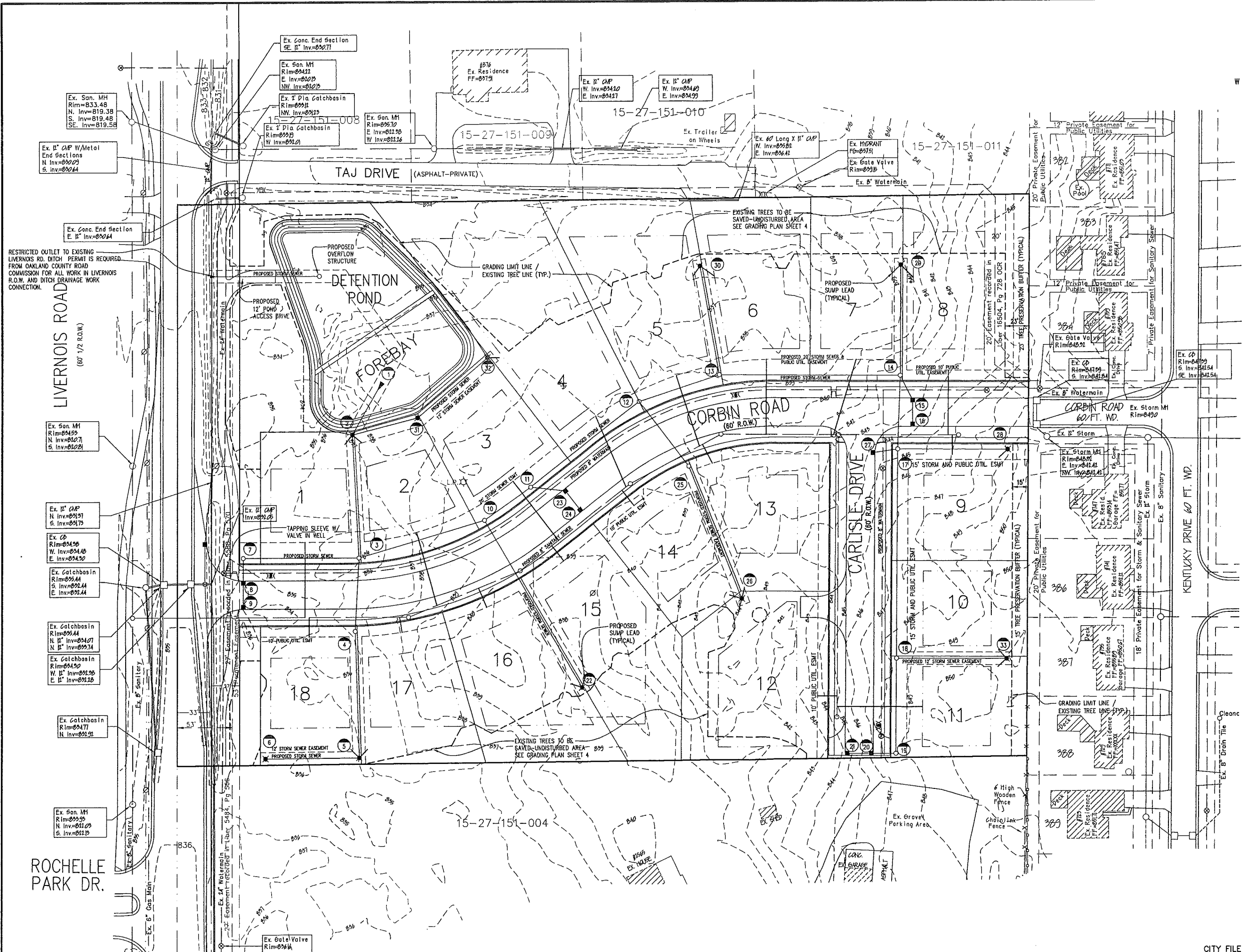
OH Engineering and Surveying
 6303 26th Street, Suite 110
 Westland, Michigan 48091
 Telephone (313) 477-4561
 www.communityeng.com

CUMBERLAND POINT
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 CITY OF ROCHESTER HILLS,
 OAKLAND COUNTY, MICHIGAN

DATE Aug. 23, 2013 SCALE 1" = 40'
 DRAWN BY J.M.B. SHEET 3 OF 9
 CHECKED BY R.S.H. DRAWING Z-13-037

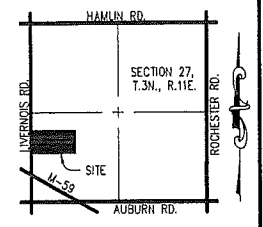
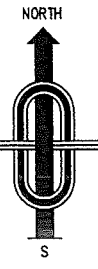
CITY FILE #14-001
 NOT TO BE USED AS CONSTRUCTION DRAWINGS

UTILITY PLAN



ROCHELLE PARK DR.

UTILITY PLAN



LOCATION MAP
NOT TO SCALE

- SOIL EROSION CONTROL NOTES:**
1. THE DEVELOPER SHALL SUBMIT AN EROSION CONTROL PLAN, COMPLETED APPLICATION, AND CHECKLIST FORMS, PAY ALL FEES AND POST AN EROSION CONTROL PERFORMANCE BOND, AS REQUIRED, PRIOR TO ANY EARTH CHANGE.
 2. 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.
 3. SPECIAL PRECAUTIONS WILL BE TAKEN WITH THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
 4. CLEANUP WILL BE DONE IN A MANNER TO ENSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
 5. THE PROJECT WILL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEQUENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITHIN 24 HOURS.
 6. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER DISCHARGE FROM THE CONSTRUCTION ACTIVITIES IS REQUIRED PRIOR TO STARTING ANY EARTH CHANGE.
 7. DEVELOPER IS RESPONSIBLE FOR GRADING THE SIDE AND REAR YARD SWALES AS DESIGNED SO THAT THE ENTIRE SITE DRAINS AS IS DESIGNED.

- CONSTRUCTION SEQUENCE:**
1. CLEAR TREES, BRUSH, AND STUMPS FROM DESIGNATED CLEARING AREAS. ALL STUMPS, CHIPS, AND DEBRIS SHALL BE DISPOSED OFF-SITE.
 2. MAKE GRADE SITE, INCLUDING EXCAVATION OF DETENTION POND. MAINTAIN EROSION CONTROL AS REQUIRED.
 3. INSTALL SANITARY SEWER, WATERMAIN AND STORM SEWER. IMMEDIATELY AFTER INSTALLATION OF STORM SEWER INSTALL STONE AND SAND INLET FILTERS AT ALL INLETS TO THE STORM SEWER SYSTEM.
 4. BRING PAVEMENT AREAS TO SUB-BASE GRADE AND PLACE TOPSOIL ON SIDE SLOPES. VERIFY THAT IT HAS BEEN CHECKED BY THE ENGINEER AND CORRECTED IF NECESSARY.
 5. INSTALL PAVEMENT AND BACKFILL CURBS. AFTER INSTALLATION OF PAVEMENT, REPLACE STONE INLET FILTERS IN PAVED AREAS.
 6. FINISH GRADE AND REDISTRIBUTE A MINIMUM OF 4" OF TOP SOIL, SEED AND MULCH ALL DISTURBED AREAS AND MAINTAIN TEMPORARY SOIL EROSION MEASURES AS REQUIRED.
 7. UPON COMPLETION, REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM STORM SYSTEM AND REMOVE SOIL EROSION CONTROLS.

- NOTES:**
1. ALL DRIVES SHALL BE A MINIMUM 18" WIDE.
 2. THE HONEYWELL DRAIN IS UNDER THE JURISDICTION OF THE OAKLAND COUNTY DRAIN COMMISSIONER'S OFFICE.
 3. THE PROPOSED ROAD WILL BE CROWNED AND WILL FOLLOW THE CITY'S STANDARDS.
 4. PROPOSED GRADES SHALL MATCH EXISTING ELEVATIONS AT THE S&T FENCE.
 5. THE PROPOSED ROADS WILL BE PUBLIC.
 6. ALL ROAD IMPROVEMENTS WITHIN THE LIVERNOIS ROADS R.O.W. WILL MEET CITY OF ROCHESTER HILLS STANDARDS. AN ACCESS PERMIT WILL BE OBTAINED FROM THE CITY PRIOR TO STARTING CONSTRUCTION.
 7. ALL LOTS AND OPEN SPACE AREAS SHALL HAVE ACCESS TO A UTILITY EASEMENT.

- GRADING NOTES:**
1. THE BOXES SHOWN ARE TO REPRESENT THE ESTIMATED HOME LOCATION. ACTUAL HOME SIZES, LOCATION AND GRADING WILL BE DETERMINED AT THE TIME THE PLOT PLAN IS PREPARED.
 2. NO WORK WILL BE PERMITTED IN A WETLAND AREA UNLESS A PERMIT HAS BEEN ISSUED TO DO SO.
 3. ALL GRADE IN PAVEMENT AREA ARE TOP OF CURB (0.33' OR 4" HIGH) UNLESS OTHERWISE NOTED.
 4. ALL SIDE YARD AND REAR YARD GRADES SHALL HAVE A MINIMUM SLOPE OF 1%. THESE SWALES ARE REQUIRED TO BE ESTABLISHED BY THE DEVELOPER WHEN THE SITE IS RUGH GRADED.
 5. SLOPES BETWEEN 1% AND 4.5% WILL BE SODDED. SLOPES GREATER THAN 4.5% WILL BE SODDED AND STAKED.
 6. ALL PROPOSED GRADES WILL MATCH THE EXISTING AT THE PERIMETER OF THE SITE (S&T FENCE LOCATION).
 7. A PERMANENT BENCHMARK WILL BE ESTABLISHED ON-SITE PRIOR TO STARTING WORK.
 8. ALL DRAINAGE SWALES SHALL BE A MINIMUM SLOPE OF 1%.

REV. 7/25/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/25/14 FORMAL SUBMITTAL TO CITY.



COMMUNITY
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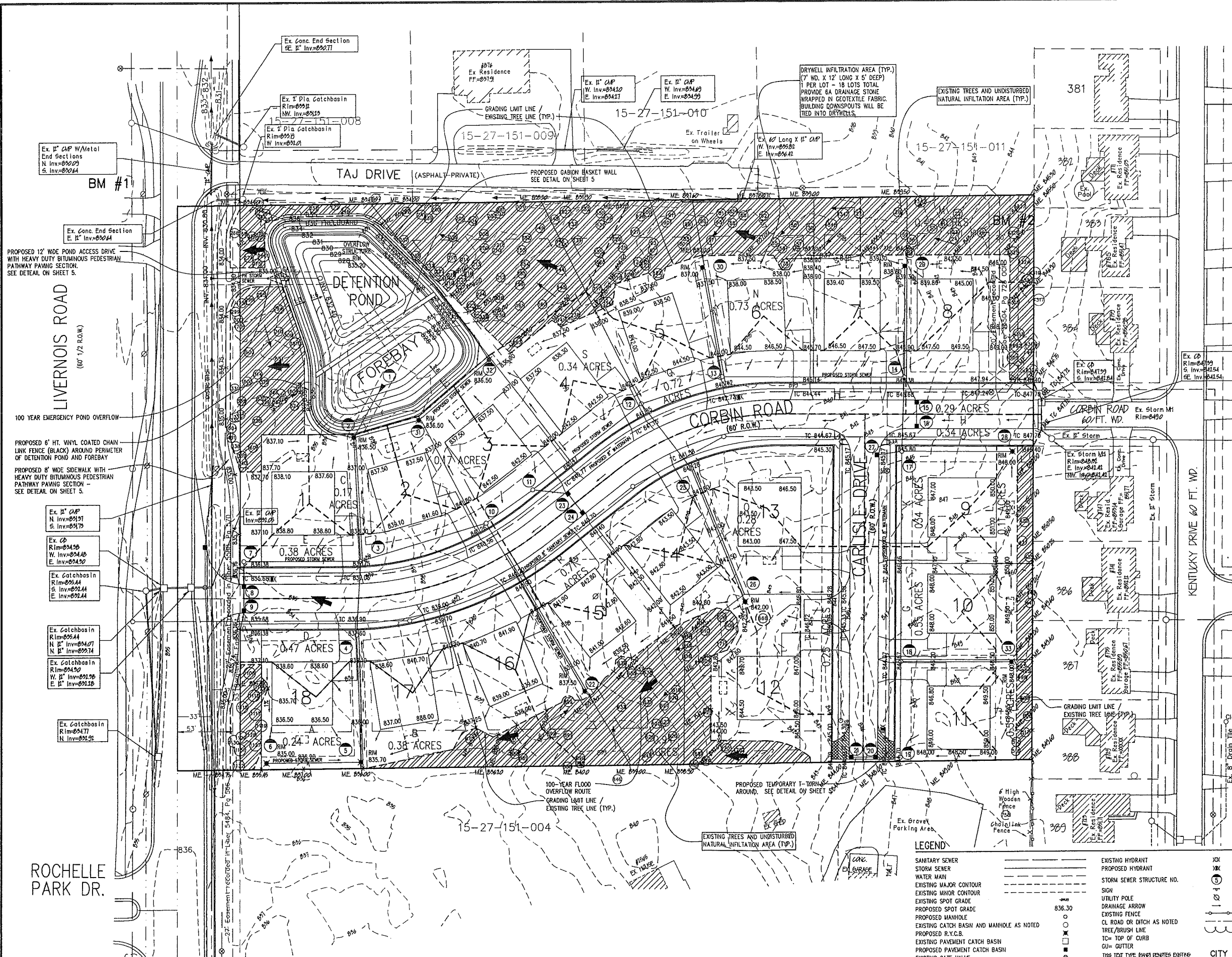
DATE Aug. 23, 2013 SCALE 1"=40'
DRAWN BY J.M.B. SHEET 4 OF 9
CHECKED BY R.S.H. DRAWING Z-13-037

PRELIMINARY GRADING PLAN
& DRAINAGE AREA MAP

CITY FILE #14-001
NOT TO BE USED AS CONSTRUCTION DRAWINGS

LEGEND

- | | |
|---|--|
| <ul style="list-style-type: none"> SANITARY SEWER STORM SEWER WATER MAIN EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR EXISTING SPOT GRADE PROPOSED SPOT GRADE PROPOSED MANHOLE EXISTING CATCH BASIN AND MANHOLE AS NOTED PROPOSED R.Y.C.B. EXISTING PAVEMENT CATCH BASIN PROPOSED PAVEMENT CATCH BASIN EXISTING GATE VALVE PROPOSED GATE VALVE | <ul style="list-style-type: none"> EXISTING HYDRANT PROPOSED HYDRANT STORM SEWER STRUCTURE NO. SIGN UTILITY POLE DRAINAGE ARROW EXISTING FENCE CL ROAD OR DITCH AS NOTED TREE/BRUSH LINE TC= TOP OF CURB CU= CUTTER |
|---|--|



ROCHELLE PARK DR.

- Ex. 12" O.P. N. Inv. = 831.91 S. Inv. = 831.79
- Ex. 12" O.P. W. Inv. = 834.48 E. Inv. = 834.32
- Ex. Catchbasin Rim = 835.44 N. Inv. = 834.01 N. Inv. = 833.74
- Ex. Catchbasin Rim = 834.32 W. Inv. = 831.98 E. Inv. = 831.78
- Ex. Catchbasin Rim = 834.71 N. Inv. = 834.92

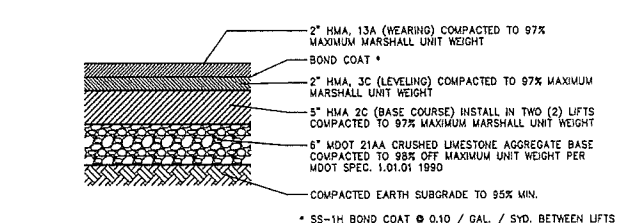
PROPOSED 12' WIDE POND ACCESS DRIVE WITH HEAVY DUTY BITUMINOUS PEDESTRIAN PATHWAY PAVING SECTION. SEE DETAIL ON SHEET 5.

PROPOSED 6' HT. VINYL COATED CHAIN LINK FENCE (BLACK) AROUND PERIMETER OF DETENTION POND AND FOREBAY

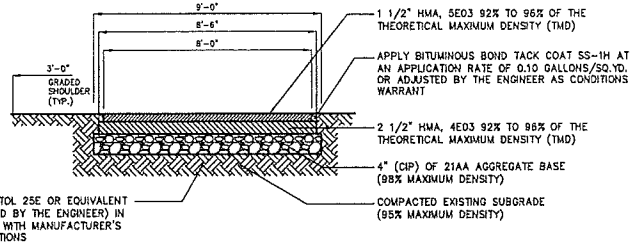
PROPOSED 6' WIDE SIDEWALK WITH HEAVY DUTY BITUMINOUS PEDESTRIAN PATHWAY PAVING SECTION - SEE DETAIL ON SHEET 5.

100-YEAR FLOOD OVERFLOW ROUTE (GRADING LIMIT LINE EXISTING TREE LINE (TYP.))

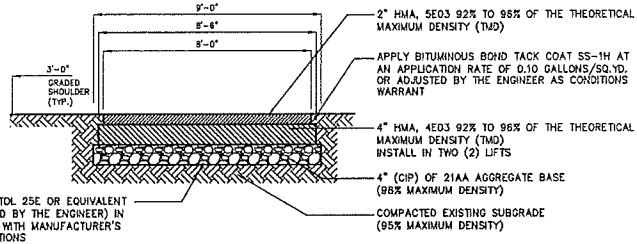
100-YEAR EMERGENCY POND OVERFLOW



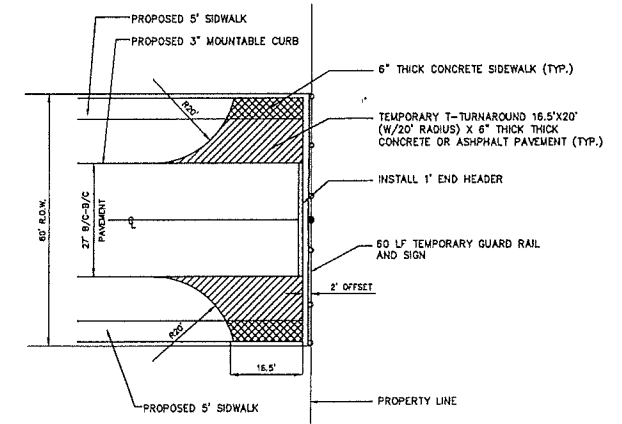
DEEP STRENGTH BITUMINOUS PAVEMENT (SITE ROADS)
NOT TO SCALE



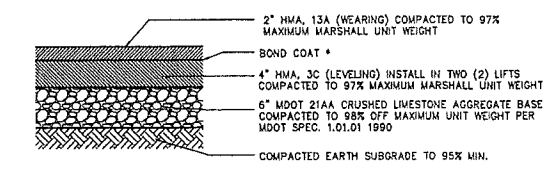
BITUMINOUS PATHWAY DETAIL
NOT TO SCALE



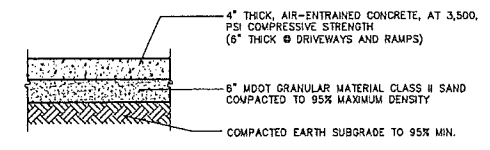
HEAVY DUTY BITUMINOUS PATHWAY DETAIL
NOT TO SCALE



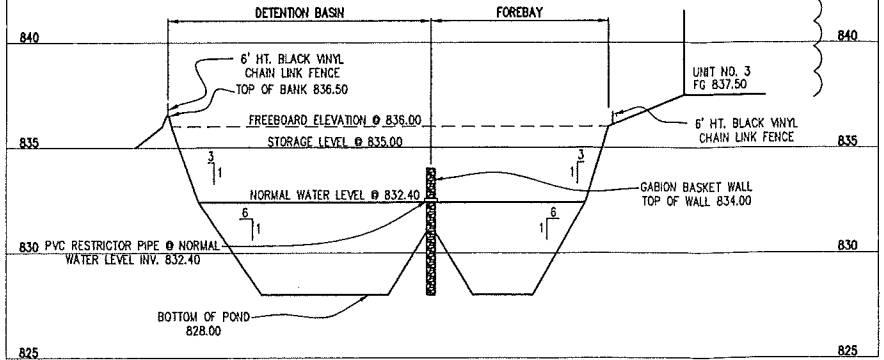
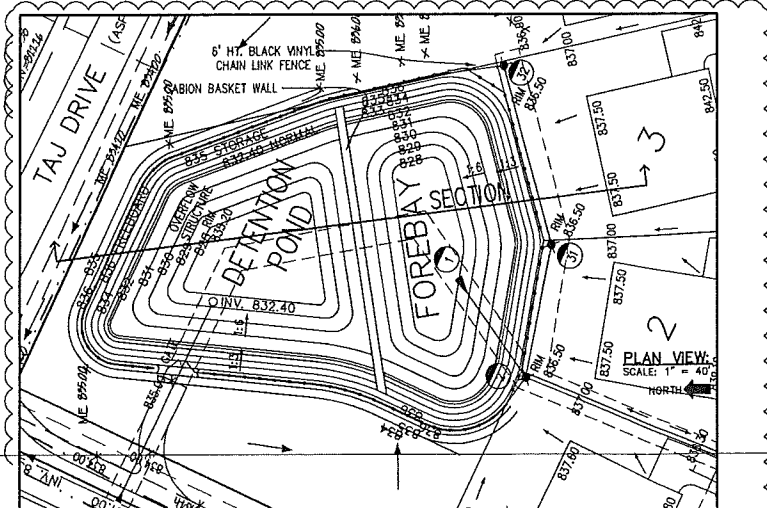
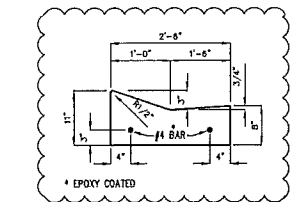
TEMPORARY T-TURN AROUND
NOT TO SCALE



RESIDENTIAL DRIVEWAY APPROACH-BITUMINOUS PAVEMENT
NOT TO SCALE



TYPICAL 5' SIDEWALK SECTION DETAIL
NOT TO SCALE



DETENTION POND & FOREBAY SECTION DETAIL
SCALE: 1" = 4' HORIZONTAL
VERTICAL

FROM	TO	ACRES	SUPER. FACTOR	EQULV. AREA	ADD. AREA	SUM OF AREA	TIME OF INTENSITY	CONCENTRATION	RUNOFF LENGTH	PIPE DIA. OF PIPE	HYDRAULIC GRADIENT	ACTUAL VELOCITY	HYDRAULIC VELOCITY	ACTUAL VELOCITY	TIME	FLOW Q (CFS)	HG ELEV UPPER END	HG ELEV LOWER END	HG ELEV UPPER END	INVERT UPPER END	INVERT LOWER END	FROM	TO	
6	3	A	0.24	0.58	0.14	0.14	3.89	20.00	0.54	60	12	0.02%	0.35%	0.69	2.97	0.00	2.02	832.85	832.85	832.85	831.15	830.84	6	3
5	4	B	0.58	0.22	0.38	0.38	3.89	20.00	1.40	70	12	0.18%	0.33%	1.78	2.97	0.00	2.02	832.85	832.84	832.76	830.48	830.24	5	4
4	3		0.88	0.00	0.38	0.38	3.89	20.00	1.40	70	12	0.18%	0.33%	1.78	2.97	0.00	2.02	832.85	832.84	832.76	830.48	830.24	4	3
3	2		0.58	0.00	0.31	0.31	4.27	24.05	15.24	117	38	0.05%	0.08%	2.16	2.68	0.00	18.92	832.54	832.45	832.80	830.14	830.05	3	2
2	1	C	0.17	0.58	0.10	0.20	4.87	3.50	24.90	19.35	56	0.06%	0.08%	2.31	2.68	0.43	18.92	832.45	832.40	832.50	830.05	830.00	2	1
9	8	D	0.47	0.58	0.27	0.27	3.89	20.00	1.05	23	12	0.06%	1.00%	1.34	4.35	0.00	3.67	831.68	831.75	835.35	831.18	830.95	9	8
8	7	E	0.58	0.22	0.49	0.49	3.89	20.00	1.81	34	12	0.28%	0.37%	2.43	2.97	0.00	2.02	831.75	831.87	835.35	830.95	830.87	8	7
7	3		0.58	0.00	0.20	0.20	3.89	20.00	1.81	111	12	0.28%	0.37%	2.43	2.97	0.00	2.02	831.75	831.21	835.50	830.77	830.41	7	3
21	20	F	0.25	0.58	0.15	0.15	3.89	20.00	0.55	23	12	0.03%	1.00%	0.74	4.35	0.00	3.67	840.28	840.35	845.50	839.48	839.25	21	20
20	19	G	0.85	0.58	0.32	0.47	3.89	20.00	1.83	24	12	0.29%	0.35%	2.55	2.97	0.00	2.02	840.05	839.97	849.50	839.25	839.17	20	19
19	18		0.64	0.00	0.47	0.47	3.89	20.00	1.83	91	12	0.28%	0.32%	2.33	2.97	0.00	2.02	839.87	839.80	849.50	839.07	838.78	19	18
18	17		0.58	0.00	0.12	0.58	3.89	20.00	2.30	169	12	0.41%	0.40%	2.97	2.98	1.15	2.50	839.60	839.78	849.50	838.78	837.98	18	17
17	14		0.58	0.00	0.28	0.85	3.79	21.13	3.22	10	15	0.23%	0.24%	2.63	2.56	0.44	3.22	838.78	838.81	849.50	837.78	837.81	17	14
14	13		0.58	0.00	0.81	1.40	3.78	21.58	5.49	174	18	0.27%	1.03%	3.11	6.05	0.93	10.69	838.08	838.19	849.50	837.78	832.99	14	13
13	12		0.58	0.00	0.42	1.88	3.89	22.81	6.92	80	18	0.43%	0.90%	3.92	4.21	0.34	7.45	838.19	838.78	849.50	837.78	832.89	13	12
12	11		0.58	0.00	0.18	2.64	3.68	22.85	7.47	132	24	0.11%	0.09%	2.28	5.06	0.80	15.88	835.14	835.14	841.19	832.19	831.84	12	11
11	10		0.58	0.00	0.85	2.87	3.59	23.78	10.90	54	24	0.21%	0.22%	3.29	3.30	0.27	10.84	833.14	833.02	840.10	831.54	831.42	11	10
10	3		0.58	0.00	0.55	3.42	3.57	24.05	12.21	125	24	0.29%	0.30%	3.89	3.95	0.54	12.42	833.02	832.84	841.40	831.42	831.04	10	3
33	16	J	0.30	0.58	0.12	0.12	3.89	20.00	0.47	105	12	0.02%	3.05%	0.59	7.84	0.00	6.24	845.56	842.50	849.00	844.78	841.59	33	16
27	17	K	0.34	0.58	0.20	0.20	3.89	20.00	0.78	24	12	0.05%	2.00%	0.99	8.43	0.00	5.05	841.41	840.93	844.84	840.81	840.13	27	17
28	17	L	0.11	0.58	0.00	0.09	3.89	20.00	0.23	105	12	0.00%	4.00%	0.30	9.10	0.00	7.14	844.59	840.39	848.00	843.79	839.59	28	17
29	14	M	0.42	0.58	0.24	0.24	3.89	20.00	0.83	105	12	0.07%	0.32%	1.19	2.97	0.00	2.02	838.42	838.08	838.60	835.82	835.28	29	14
30	13	N	0.73	0.58	0.42	0.42	3.89	20.00	1.83	105	12	0.21%	0.32%	2.08	2.97	0.00	2.02	834.63	834.29	837.00	833.83	833.49	30	13
29	25	O	0.28	0.58	0.16	0.16	3.89	20.00	0.82	123	12	0.03%	0.32%	0.79	2.97	0.00	2.02	835.13	834.74	842.00	834.83	833.84	29	25
25	12		0.58	0.00	0.18	0.38	3.89	20.00	0.82	78	12	0.03%	0.32%	0.79	2.97	0.00	2.02	834.74	834.48	842.40	833.94	833.89	25	12
24	23	P	0.71	0.58	0.41	0.41	3.89	20.00	1.59	23	12	0.20%	1.00%	2.03	4.35	0.00	3.67	834.09	833.50	839.37	833.29	833.09	24	23
23	11	Q	0.72	0.58	0.42	0.83	3.89	20.00	3.23	34	12	0.82%	1.00%	4.11	4.35	1.14	3.67	833.86	833.52	839.37	833.06	832.72	23	11
22	10	R	0.94	0.58	0.65	0.65	3.89	20.00	2.14	185	12	0.36%	0.32%	2.72	2.97	1.13	2.14	833.70	833.04	838.00	832.83	832.24	22	10
32	31	S	0.34	0.60	0.20	0.20	3.89	20.00	0.78	86	12	0.05%	0.35%	0.99	2.81	0.00	2.05	833.13	832.84	838.50	833.53	832.84	32	31
31	2	T	0.17	0.58	0.10	0.20	3.89	20.00	1.17	84	12	0.11%	0.33%	1.49	2.61	0.00	2.02	832.84	832.63	836.50	832.04	831.83	31	2
18	15	H	0.34	0.58	0.20	0.20	3.89	20.00	0.78	23	18	0.01%	1.00%	0.44	5.96	0.00	10.83	842.88	842.45	845.85	841.48	841.25	18	15
15	14	I	0.29	0.58	0.17	0.37	3.89	20.00	1.44	28	12	0.16%	0.32%	1.83	2.97	0.00	2.02	842.46	842.37	845.85	841.65	841.57	15	14

SANITARY SEWER BASIS OF DESIGN
INITIAL DISCHARGE = 18 UNITS = 63 PERSONS
TOTAL SINGLE FAMILY UNITS = 18 UNITS
PEOPLE = 18 UNITS X 3.5 PEOPLE/UNIT = 63 PERSONS
AVERAGE ESTIMATED FLOW = 63 PEOPLE X 100 G.P.C.P.D. = 6300 G.P.D. = 0.0097 CFS

PEAK FACTOR = $\frac{18 + \sqrt{P/1000}}{4 + \sqrt{P/1000}} = \frac{18 + 0.083}{4 + 0.083} = 4.0$

PEAK FLOW = 0.0388 CFS

A 6" SANITARY SEWER AT A MINIMUM SLOPE OF 0.40% HAS A CAPACITY OF 0.78 C.F.S.

ULTIMATE DISCHARGE = INITIAL DISCHARGE

DETENTION CALCULATIONS:
C = 0.58 runoff coefficient
A = 9.257 ACRES
Q = 0.20 cfs/acre
Allowable Release Rate: (0.20 cfs/acre)
QA = 9.257 Acres x 0.20 = 1.85 cfs

Detention Required
Flooding Protection (Overbank) +
25-Year Flood Volume Required:

$Q_0 = \frac{Q_a}{T} = 0.345 \text{ cfs/acre-imp}$
 $T = \frac{-25 + \sqrt{(5.0625 / 0.00)}}{127.87 \text{ Min.}}$
 $V_f = (12,900 \times T) / (T + 25) - 40T Q_0$
 $V_f = 9,026 \text{ cfs/acre-imp}$

$V_{25} = V_a \times A \times C$
 $V_{25} = 48,461 \text{ CF}$

FLOODING PROTECTION VOLUME PROVIDED:

ELEVATION	AREA	VOLUME	TOTAL
832.40	9734	5999	5999
833.0	10262	10713	16712
834.0	11165	11630	28342
835.0	12096	11630	28342

WATER QUALITY VOLUME PROVIDED:

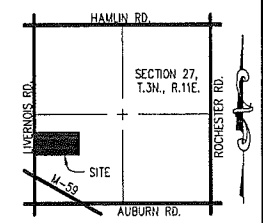
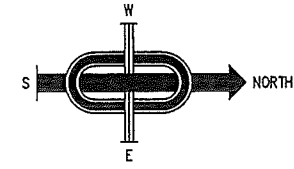
ELEVATION	AREA	VOLUME	TOTAL
832.40	8931	5499	5499
833.0	9399	9800	15299
834.0	10201	10616	25915
835.0	11031	11031	

Infiltration Area Required
Post Development Water Quality
1-Year Flood Volume Required:
 $WQ = 1.815 \times A \times C$
 $WQ = 1.815 \times (9.257) \times (0.58) = 9,745 \text{ CF}$

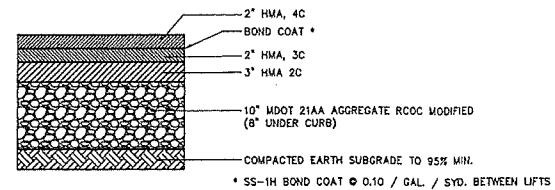
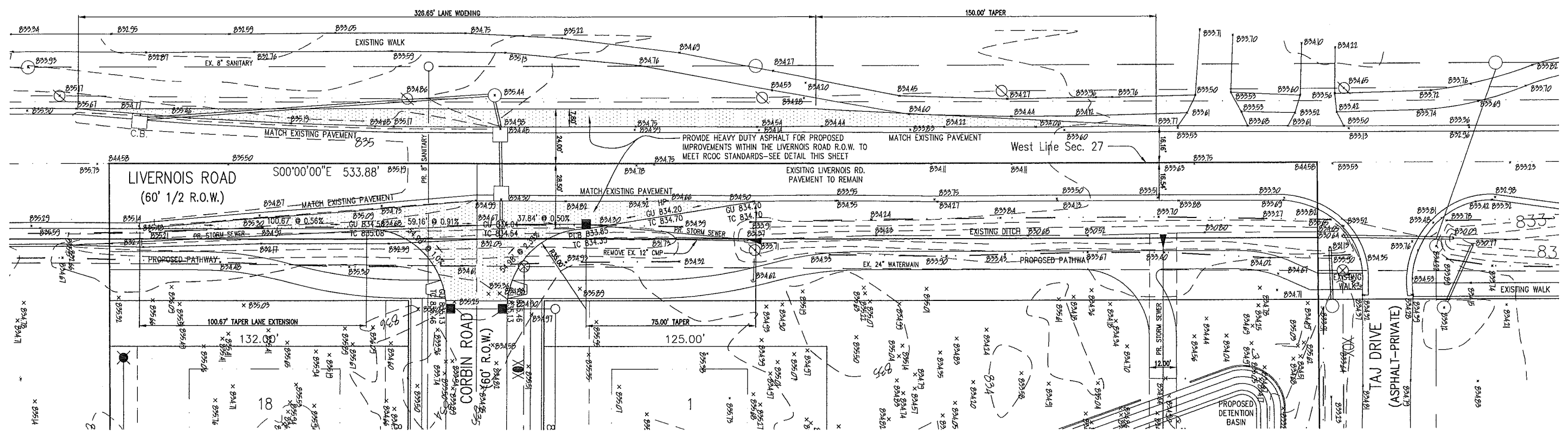
Existing Undisturbed & Existing Tree Area:
South Livernois Rd: 1,998 sf
North Livernois Rd. & Detention Basin: 11,140 sf
South of Lots 12, 14-17: 22,221 sf
North of Lots 4-8: 43,529 sf
East of Lot 8: 4,017 sf
East of Lot 9-11: 4,448 sf
Total Area: 87,444 sf

Infiltration of 1" (.08") Used in Calculation.
87,444 sf x .08" = 6,995 CF

Proposed Drywell:
Install



LOCATION MAP
NOT TO SCALE



HEAVY DUTY BITUMINOUS PAVEMENT (LIVERNOIS RD. R.O.W.)
(R.O.C. STIPPLED DETAIL)
NOT TO SCALE

LEGEND

- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SPOT GRADE
- PROPOSED SPOT GRADE
- PROPOSED MANHOLE
- EXISTING CATCH BASIN AND MANHOLE AS NOTED
- PROPOSED R.Y.C.B.
- EXISTING PAVEMENT CATCH BASIN
- PROPOSED PAVEMENT CATCH BASIN
- EXISTING GATE VALVE
- PROPOSED GATE VALVE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- SSH
- UTILITY POLE
- DRAINAGE ARROW
- EXISTING FENCE
- CL ROAD OR DITCH AS NOTED
- TREE/BRUSH LINE
- TC = TOP OF CURB
- GU = GUTTER

BEFORE YOU DIG
CALL MISS DIG
1-800-487-7434

REV. 7/6/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 7/28/14 FORMAL SUBMITTAL TO CITY.



COMMUNITY
CIVIL ENGINEERING & SURVEYING

City of Rochester Hills
3300 25 Mile Road, Suite 110
Rochester Hills, Michigan 48064
Telephone (248) 877-4051
www.communityeng.com

CUMBERLAND POINT
PART OF THE NORTHWEST 1/4 OF
SECTION 27, T.3N., R.11E.
CITY OF ROCHESTER HILLS,
OAKLAND COUNTY, MICHIGAN.

DATE Aug. 23, 2013	SCALE 1"=20'
DRAWN BY J.M.B.	SHEET 6 OF 9
CHECKED BY R.S.H.	DRAWING Z-13-037

CITY FILE #14-001
NOT TO BE USED AS CONSTRUCTION DRAWINGS

ROW IMPROVEMENTS

CITY TREE PROTECTION NOTES

IMPORTANT: ALL TREES ON ADJACENT PROPERTIES MUST BE PROTECTED. THE TREE PROTECTIVE FENCING MAY BE PLACED ALONG THE ACTUAL PROPERTY LINE IF THE BRANCHES OF THE TREES ON THE ADJACENT PROPERTIES DO NOT OVERHANG ONTO THE SITE BEING DEVELOPED. IF THE BRANCHES OVERHANG ONTO THE AREA OF THE SITE BEING DEVELOPED, THE TREE PROTECTIVE FENCING MUST BE PLACED AT THE ACTUAL DRIP LINE OF THESE TREES. IT SHOULD ALSO BE NOTED THAT THE SALT FENCING MUST BE PLACED ON THE DEVELOPER'S SIDE OF THE TREE PROTECTIVE FENCING. THE SALT FENCING MAY NOT BE PLACED BETWEEN THE TREE BEING PRESERVED AND THE TREE PROTECTIVE FENCING. IF ANY REGULATED TREES ARE DAMAGED ON THE ADJACENT PROPERTIES, THE DAMAGED TREES WILL BE EITHER REPLACED ON THE OWNERS PROPERTY OR AN INCH FOR INCH BASIS OR A FINE BY THE SUM OF \$22.00 PER CALIPER INCH WILL BE ISSUED AGAINST THE DEVELOPER. THIS FINE WILL BE DUE PRIOR TO BUILDING PERMITS BEING ISSUED. IF YOU HAVE ANY QUESTIONS OR NEED ADDITIONAL INFORMATION, CALL THE CITY'S PLANNING DEPARTMENT AT 248-656-4860.

- TREE PROTECTION NOTES**
- The tree protection fencing (TPF) shall be erected per the plans approved by the City of Rochester Hills Planning Department. The TPF must be in place and be inspected by the City of Rochester Hills Planning Staff prior to the start of any earthwork or construction operations. It is the developer's responsibility to contact the City Planning Department at 248-656-4860 to schedule a TPF inspection. The TPF shall remain in place throughout the entire construction process or until the City authorizes the removal or issues a final Certificate of Occupancy, whichever occurs first.
 - Upon completion of grading and the installation of the infrastructure, a second inspection of the TPF and the trees designated for preservation is required by the City of Rochester Hills Forestry prior to the start of any additional construction. It is the developer's responsibility to contact the City Planning Department at 248-656-4860 to schedule this inspection.
 - A final inspection by the City of Rochester Hills Planning Staff is required at the end of the warranty and maintenance period. The Landscape Maintenance Bond will not be released until the inspection is complete and all related issues are resolved. It is the developer's responsibility to contact the City Planning Department at 248-656-4860 to schedule this inspection.
 - The Tree Conservation Ordinance prohibits any construction or development activities within the drip line of any regulated trees not approved for removal, including, but not limited to, land clearing, grubbing, trenching, grading or filling, no person shall place any solvents, building material, construction equipment, soil deposits or harmful materials within the drip line limit of trees designated for preservation.
 - Proposed grades are to match the existing elevations outside the limits of the TPF. Its grading either cut or fill is permitted within the drip line of any tree designated for preservation.
 - During the construction process no person shall attach any device or wire/cable/cord/rope to an existing tree designated to be preserved.
 - All utility service requests must include notification to the installer that protected trees must be avoided. All trenching shall occur outside the TPF.
 - Swales shall be routed to avoid the area within the drip line of the only tree designated for preservation. Swales shall be constructed so as to not direct any additional flow into the drip line of a tree designated for preservation.
 - If tree protection cannot be maintained for a tree throughout entire period required, the replacement of that tree will be required on an inch for inch basis prior to the issuance of any Certificate of Occupancy.
 - Regulated trees located off-site on adjacent properties that may be affected by construction operations must be protected defined herein.
 - The TPF shall consist of four-foot high orange snow fencing to be installed around the drip line of all trees designated to be saved. This fencing shall be supported by six-foot metal Teak posts five-foot on center and driven a minimum of 24" into the ground. The TPF fencing shall remain upright and securely in place for the required time as specified above.
 - Prior the release of the Performance Bond, the City of Rochester Hills Forestry Division needs to inspect all trees existing or planted, to identify any that pose a hazard to the safe use of the public right-of-way. Forestry may require the developer to remove and possibly replace any such trees.

DATE: 03/11/2014
 PREPARED BY: JACQUELYNNE PEELE-CITY ENGINEER
 CHECKED BY: JACQUELYNNE PEELE-CITY ENGINEER
 COMMENTS:
 DRAWN BY: JAC

donald c. westphal
 ASSOCIATES, L.L.C.
 LANDSCAPE ARCHITECTS & PLANNERS
 7000 WOODLAND DRIVE, SUITE 100
 TROY, MI 48063-1000
 TEL: 248-656-4860 FAX: 248-656-4860

TREE PRESERVATION PLAN AND DETAILS

TREE REPLACEMENT CREDITS

KEY: DECIDUOUS TREES: 2" CAL. = 1 CREDIT, 3" CAL. = 2 CREDITS
 EVERGREEN TREES: 8" HT. = 1 CREDIT, 10" HT. = 2 CREDITS

- STREET TREES:
 47 DECIDUOUS TREES AT 3" CALIPER
 REPLACEMENT TREE CREDITS: (47x2) = 94 CREDITS
- ORNAMENTAL TREES:
 17 DECIDUOUS TREES AT 3" CALIPER
 6 EVERGREEN TREES AT 8" HEIGHT
 REPLACEMENT TREE CREDITS: (17x2)+(6x1) = 40 CREDITS
- ADDITIONAL OPEN SPACE TREES:
 4 DECIDUOUS TREES AT 3" CALIPER
 21 EVERGREEN TREES AT 10" HEIGHT
 REPLACEMENT TREE CREDITS: (4x2)+(21x1) = 50 CREDITS

TOTAL TREE REPLACEMENT CREDITS:
 STREET TREES - 94
 ORNAMENTAL TREES - 40
 OPEN SPACE TREES - 50
 TOTAL - (94+40+50) = 184 REPLACEMENT TREE CREDITS

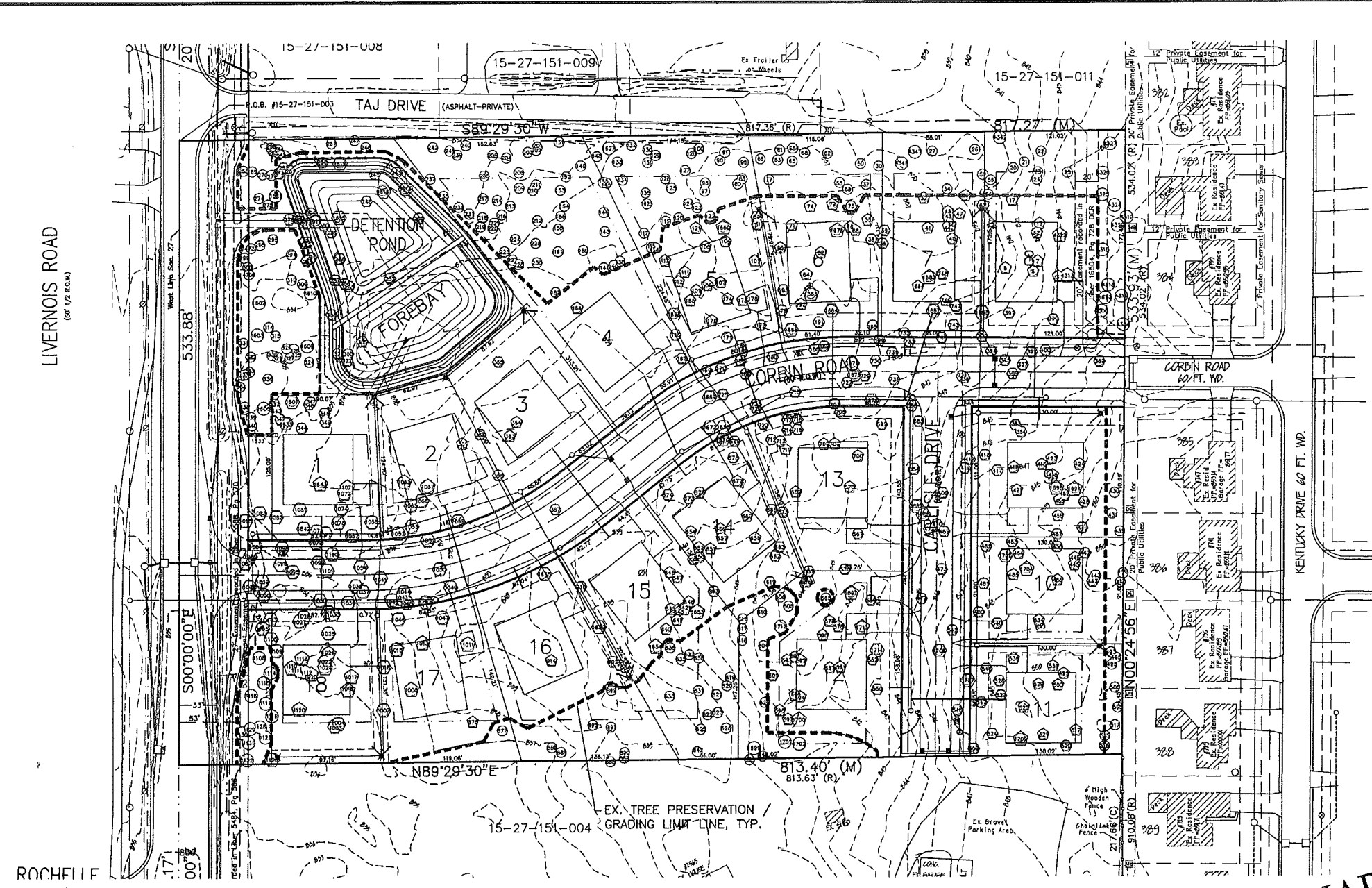
LEGEND

- BUILDING ENVELOPE
- TREE PROTECTION BARRIER
- EXISTING TREE TO BE REMOVED FOR GRADING AND/OR UTILITIES
- EXISTING TREE TO BE REMOVED IN BUILDING ENVELOPE
- EXISTING TREE TO BE SAVED

NORTH

0 50 100 150

SCALE IN FEET
 CITY FILE # 14-001



**PRELIMINARY
 NOT FOR CONSTRUCTION**

ADDITIONAL TREE PROTECTION NOTES

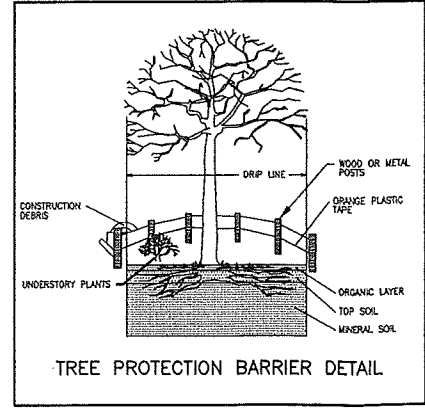
- BEFORE DEVELOPMENT, LAND CLEARING, FILLING OR ANY LAND ALTERATION FOR WHICH A TREE REMOVAL PERMIT IS REQUIRED, THE PERMIT HOLDER SHALL CLEARLY MARK BY PAINTING, FLAGGING, OR OTHER APPROVED METHOD ALL TREES TO BE REMOVED AND SHALL ERECT AND MAINTAIN SUITABLE BARRIERS TO PROTECT REMAINING TREES. PROTECTIVE BARRIERS SHALL REMAIN IN PLACE UNTIL THE CITY AUTHORIZES THEIR REMOVAL OR ISSUES A FINAL CERTIFICATE OF OCCUPANCY, WHICHEVER OCCURS FIRST. BARRIERS ARE REQUIRED FOR ALL TREES NOT APPROVED FOR REMOVAL, EXCEPT FOR THE FOLLOWING:
 STREET RIGHT-OF-WAY AND UTILITY EASEMENTS MAY BE CORDONED BY PLACING STAKES A MINIMUM OF FIFTY (50) FEET APART AND TYING RIBBON, PLASTIC TAPE, ROPE ETC., FROM STAKE TO STAKE ALONG THE OUTSIDE PERIMETERS OF AREAS TO BE CLEARED.
 LARGE PROPERTY AREAS SEPARATE FROM THE CONSTRUCTION OR LAND CLEARING AREA ONTO WHICH NO EQUIPMENT WILL VENTURE MAY ALSO BE CORDONED OFF AS DESCRIBED IMMEDIATELY ABOVE.
- NO VEHICLE OR OTHER CONSTRUCTION EQUIPMENT SHALL BE PARKED OR STORED WITHIN PROTECTED AREAS.
- METHOD OF FIELD DELINEATION: INDIVIDUAL SPECIMEN TREES WERE LOCATED AND IDENTIFIED ACCORDING TO STANDARD SURVEYING PRACTICES.

TREE REPLACEMENT PROGRAM

- NUMBER OF REPLACEMENT TREE CREDITS REQUIRED = 369.
 REPLACEMENT TREES WILL CONSIST OF 3" MINIMUM CALIPER DECIDUOUS TREES OR 8" MINIMUM HEIGHT EVERGREEN TREES.
- THE REPLACEMENT TREES SHALL CONFORM TO THE LATEST REVISION OF THE AMERICAN STANDARD FOR NURSERY STOCK AND 286.1-1990, AND MUST BE APPROVED BY THE CITY PRIOR TO PLANTING.
- ALL REPLACEMENT OR LANDSCAPE TREES SHALL NOT BE PLANTED WITHIN 10' OF AN UNDERGROUND UTILITY LINE, NOR WITHIN 15' OF AN OVERHEAD UTILITY LINE.
- REPLACEMENT TREES MAY NOT BE PLANTED WITHIN THE DRIP LINE OF EXISTING TREES.
- REPLACEMENT AND RELOCATED TREES MUST BE STAKED, FERTILIZED AND MULCHED, AND SHALL BE GUARANTEED BY THE TREE REMOVAL PERMIT HOLDER TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (1) YEAR FOLLOWING PLANTING.
- TOTAL ON-SITE REPLACEMENT COST HAS BEEN ESTIMATED TO BE \$18,400.00

GENERAL TREE NOTES

- THIS TREE PRESERVATION AND REPLACEMENT PLAN INVENTORIES ALL REGULATED TREES IN PROXIMITY TO PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE CITY ORDINANCE.
- HEXAGONS REPRESENT REGULATED TREES TO BE REMOVED IN GRADING & UTILITIES AREAS, PENTAGONS REPRESENT TREES TO BE REMOVED IN BUILDING DEVELOPED. ALL CIRCLED TREES WILL BE PRESERVED.
- FOR TREE PROTECTION MEASURES, SEE "TREE PROTECTION NOTES".
- SEE THE ATTACHED "LANDSCAPE - TREE INVENTORY" DOCUMENT FOR TREE IDENTIFICATION LISTS.
- SEE THIS SHEET FOR TREE PROTECTION BARRIER LOCATIONS.
- BUILDING ENVELOPES SHALL CONSIST OF THE BUILDABLE AREA REMAINING ON A LOT OR BUILDING SITE AFTER SATISFYING THE SETBACK REQUIREMENTS.



TREE REPLACEMENT CALCULATIONS

ON-SITE TREES	
TOTAL NUMBER OF REGULATED TREES (≥ 6"DBH).....	821
TOTAL NUMBER OF REGULATED TREES IN BUILDING ENVELOPES.....	142
TOTAL NUMBER OF REGULATED TREES IN PROPOSED GRADING AND UTILITIES AREAS.....	147
TOTAL NUMBER OF REGULATED TREES TO BE REMOVED (142+147).....	289
TOTAL NUMBER OF REGULATED TREES TO BE SAVED (821-289).....	532
PERCENTAGE OF REGULATED TREES TO BE SAVED.....	37%
REQUIRED PERCENTAGE OF REGULATED TREES TO BE SAVED.....	37%
TREES THAT ARE REMOVED WILL BE REPLACED ON A ONE-FOR-ONE BASIS PER CITY ORDINANCE	
ON-SITE REPLACEMENT TREES	
TOTAL NUMBER OF REPLACEMENT TREES REQUIRED	369
**TOTAL NUMBER OF REPLACEMENT TREE CREDITS PROVIDED ON-SITE	184

DATE: 04/11/2014
 REVIEWED: JEFFREY L. BROWN
 PROJECT: 15-27-151-009
 DRAWN BY: J.L. BROWN

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LANDSCAPE PLAN & DETAILS

Cumberland Pointe
 Rochester Hills, Oakland County, Michigan

PLANT NOTES:

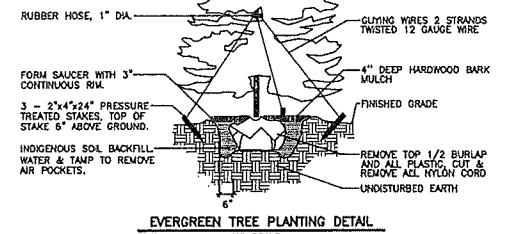
- PLANT MATERIALS SHALL BE SOUND, HEALTHY, VIGOROUS, FREE FROM PLANT DISEASES AND INSECTS OR THEIR EGGS, AND SHALL HAVE NORMAL, HEALTHY ROOT SYSTEMS. CALIPER MEASUREMENTS SHALL BE TAKEN 6" ABOVE THE GROUND LEVEL. ALL OTHER MEASUREMENTS SHALL BE TAKEN IN ACCORDANCE WITH THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z-60.1 1986.)
- PLANTING POCKETS SHALL BE DOG SO THAT THE POCKET DIAMETER IS A MINIMUM OF 12" LARGER THAN THE ROOT BALL AND THE SIDES OF POCKET ARE VERTICAL AND FRACTURED. INDIGENOUS SOILS SHALL BE TAMPED AND WATERED DURING BACK FILLING PROCEDURE.
- PLANTING POCKETS SHALL BE NO DEEPER THAN THE HEIGHT OF THE ROOT BALL. SAUCER SHALL BE MADE ON THE EDGES OF PLANTING POCKET.
- TREES SHALL BE GUYED WITH TWO STRANDS TWISTED OF 12 GAUGE GALVANIZED WIRE. PROTECT THE TREE TRUNK WITH HOSE OR OTHER ACCEPTABLE MEANS. GUY TO TWO HARDWOOD 2" x 2" x 8' POSTS, DRIVEN 2' DEEP IN UNDISTURBED SOIL.
- MULCH SHALL BE GROUND OR SHREDDED HARDWOOD BARK, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF PLANTING BEDS AND INDIVIDUAL TREE PLANTINGS.
- TREES SHALL BE MULCHED WITH MIN. 4" DEEP HARDWOOD BARK MULCH 30" DIAMETER CIRCLE AROUND THE TREE.
- SHRUBS SHALL BE MULCHED WITH THE DETAIL ON THIS SHEET.
- MULCH SHALL BE MIN. 4" DEEP HARDWOOD BARK. SEE LANDSCAPE PLAN FOR LOCATION OF PLANTING BEDS. SEE PLANTING DETAILS FOR INDIVIDUAL PLANTINGS.
- PLANTS SHALL BE GUARANTEED FOR ONE COMPLETE GROWING SEASON (12 MONTHS). DEAD MATERIALS SHALL BE REPLACED AS NEEDED PRIOR TO THE EXPIRATION OF THE GUARANTEE PERIOD, IN ACCORDANCE WITH THE CITY OR TOWNSHIP ORDINANCE REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE IN WRITING A LIST OF RECOMMENDED MAINTENANCE PROCEDURES FOR THE FIRST GROWING SEASON.
- EVERGREEN TREES SHOWN ON THE PLANT LIST SHALL VARY IN HEIGHT IN THE RANGE SHOWN PROVIDING FOR AN EVEN DISTRIBUTION OF TALLER AND SHORTER TREES.
- REMOVE TOP 1/2 OF BURLAP ON ROOT BALL OR ALL IF WRAPPED IN PLASTIC COVERING AND/OR ALL NYLON CORD.
- PLANT MATERIALS SHALL BE USED IN COMPLIANCE WITH THE PROVISIONS OF THE CITY OR TOWNSHIP ORDINANCE AND SHALL BE FREE OF PESTS AND DISEASES, HARDY IN THE COUNTY, IN CONFORMANCE WITH THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSESMEN, AND SHALL HAVE PASSED INSPECTIONS REQUIRED UNDER STATE REGULATIONS. IN ADDITION, PLANT MATERIALS SHALL CONFORM TO THE STANDARDS OF THE COUNTY COOPERATIVE EXTENSION SERVICE, A COPY OF WHICH SHALL BE KEPT ON FILE WITH THE PLANNING OFFICE.
- SOD SHALL BE CERTIFIED TURF GRASS SOD COMPLYING WITH A.S.P.A. SPECIFICATIONS FOR MACHINE-CUT TURFGRASS. SIZE, STRENGTH, MOISTURE CONTENT, AND MOVED HEIGHT, AND FREE OF WEEDS AND UNDESIRABLE NATIVE GRASSES. PROVIDE Viable SOD OF UNIFORM DENSITY, COLOR, AND TEXTURE. SOD SHALL BE STRONGLY ROOTED AND CAPABLE OF VIGOROUS GROWTH AND DEVELOPMENT WHEN PLANTED. CUT SOD SHALL NOT BE PERMITTED TO DRY OUT AND SHALL BE LAID WITHIN 24 HOURS OF WHEN CUT. FERTILIZE AND WATER THE SOD AS REQUIRED DURING THE FIRST GROWING SEASON TO MAINTAIN A DENSE AND VIGOROUS TURF.
- PLANTING BED SOIL FOR ANNUALS SHALL BE SCREENED TOPSOIL. TO DETER WEED GROWTH DURING THE ESTABLISHMENT OF ANNUAL BED, APPLY A PRE-EMERGENT ("PREEN" OR EQUAL) AFTER PLANTING ANNUALS. 2" THICK PER GROWING SEASON, AT A RATE AS PER RECOMMENDATION OF PRODUCT MANUFACTURER.
- TREES OF 2" CALIPER AND GREATER SHALL BE WRAPPED WITH 8" WIDE KRAFT CREPE. WRAP THE TRUNK TO EACH SPICAL WRAP TO FORM A DOUBLE WRAPPING. SECURE WRAPPING WITH TWINE. DO NOT WRAP SPECIES SUBJECT TO BORERS.

LANDSCAPE CONTRACTOR'S "ONE-YEAR IRRIGATION REQUIREMENT PERIOD"

IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO PROGRAM AND PERIODICALLY ADJUST THE IRRIGATION SYSTEM (PROVIDED BY OTHERS) AS REQUIRED TO INSURE DELIVERY OF PROPER AND ADEQUATE WATER SUPPLY TO ALL PLANT MATERIALS, SOD AND SEEDED LAWN AREAS (SERVICED BY THE IRRIGATION SYSTEM) TO INSURE THE ESTABLISHMENT OF HEALTHY PLANT MATERIALS AND LAWNS FOR THEIR FIRST YEAR OF GROWTH. FOLLOWING THE LANDSCAPE CONTRACTOR'S "ONE-YEAR IRRIGATION REQUIREMENT PERIOD" THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH A SUGGESTED "IRRIGATION MAINTENANCE SCHEDULE" FOR HIS USE.

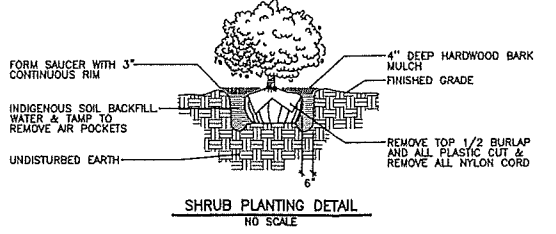
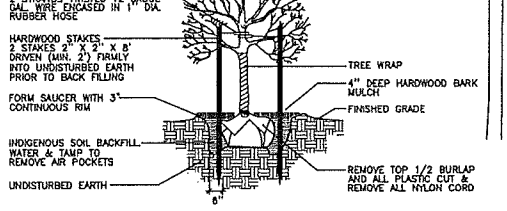
NOTE:

- *PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.
- *FLAG GUYING WARES WITH SURVEYOR TAPE, ONE PER GUYING WIRE.



NOTE:

- *PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.
- *STAKE ABOVE FIRST BRANCHES OR AS NECESSARY FOR FIRM SUPPORT.
- 2 STRANDS TWISTED 12 GAUGE GALV. WIRE ENCASED IN 1" DIA. RUBBER HOSE
- HARDWOOD STAKES 2" x 2" x 8' DRIVEN 2' DEEP INTO UNDISTURBED EARTH PRIOR TO BACK FILLING
- FORM SAUCER WITH 3" CONTINUOUS RIM
- INDIGENOUS SOIL BACKFILL WATER & TAMP TO REMOVE AIR POCKETS
- UNDISTURBED EARTH
- REMOVE TOP 1/2 BURLAP AND ALL PLASTIC CUT & REMOVE ALL NYLON CORD



LANDSCAPE REQUIREMENTS

STORMWATER MANAGEMENT POND BUFFER: 1.5 DECIDUOUS TREES + 1 EVERGREEN TREE + 4 SHRUBS PER 100 LINEAL FEET

LINEAL FEET OF STORMWATER POND PERIMETER: 624 LF
 NUMBER OF DECIDUOUS TREES REQUIRED (624/100)x1.5: 9
 NUMBER OF EVERGREEN TREES REQUIRED (624/100)x1: 6
 NUMBER OF SHRUBS REQUIRED (624/100)x4: 25
 NUMBER OF DECIDUOUS TREES PROVIDED: 10
 NUMBER OF EVERGREEN TREES PROVIDED: 6
 NUMBER OF SHRUBS PROVIDED: 28

PLANT LIST

TREES:	NO.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING	TREE CREDITS
	8	CONCOLOR FIR	ABIES CONCOLOR	10' HT. B.&B.	6' O.C.	2 PER TREE
	13	EASTERN RED CEDAR	JUNIPERUS VIRGINIANA	10' HT. B.&B.	13' O.C.	2 PER TREE
	8	GREEN VASE ZELCOVA	ZELCOVA SERRATA 'GREEN VASE'	3" CAL. B.&B.	30' O.C. MIN.	2 PER TREE
	7	HARVEST GOLD LINDEN	TILIA CORDATA X MONGOLICA 'HARVEST GOLD'	3" CAL. B.&B.	30' O.C. MIN.	2 PER TREE
	11	RED POINT MAPLE	ACER RUBRUM 'FRANK JR.'	3" CAL. B.&B.	35' O.C. MIN.	2 PER TREE
	10	RED RAGE TUPELO	NYSSA SYLVATICA 'HAYMANRED'	3" CAL. B.&B.	35' O.C. MIN.	2 PER TREE
	11	SKYLINE HONEYLOCUST	GLEDTISIA TRIACANTHOS 'INERMIS 'SKYCOLE'	3" CAL. B.&B.	35' O.C. MIN.	2 PER TREE
	4	SWAMP WHITE OAK	QUERCUS BICOLOR	3" CAL. B.&B.	25' O.C.	2 PER TREE

DETENTION POND BUFFER PLANTS

TREES:	NO.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING
	6	CONCOLOR FIR	ABIES CONCOLOR	10' HT. B.&B.	6' O.C.
	7	GREEN MOUNTAIN MAPLE	ACER SACCHARUM 'GREEN MOUNTAIN'	3" CAL. B.&B.	20' O.C. MIN.
	3	SWAMP WHITE OAK	QUERCUS BICOLOR	3" CAL. B.&B.	25' O.C.

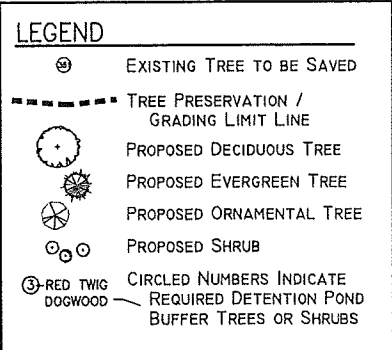
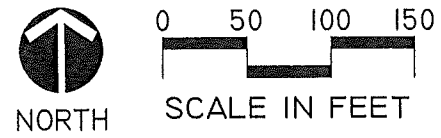
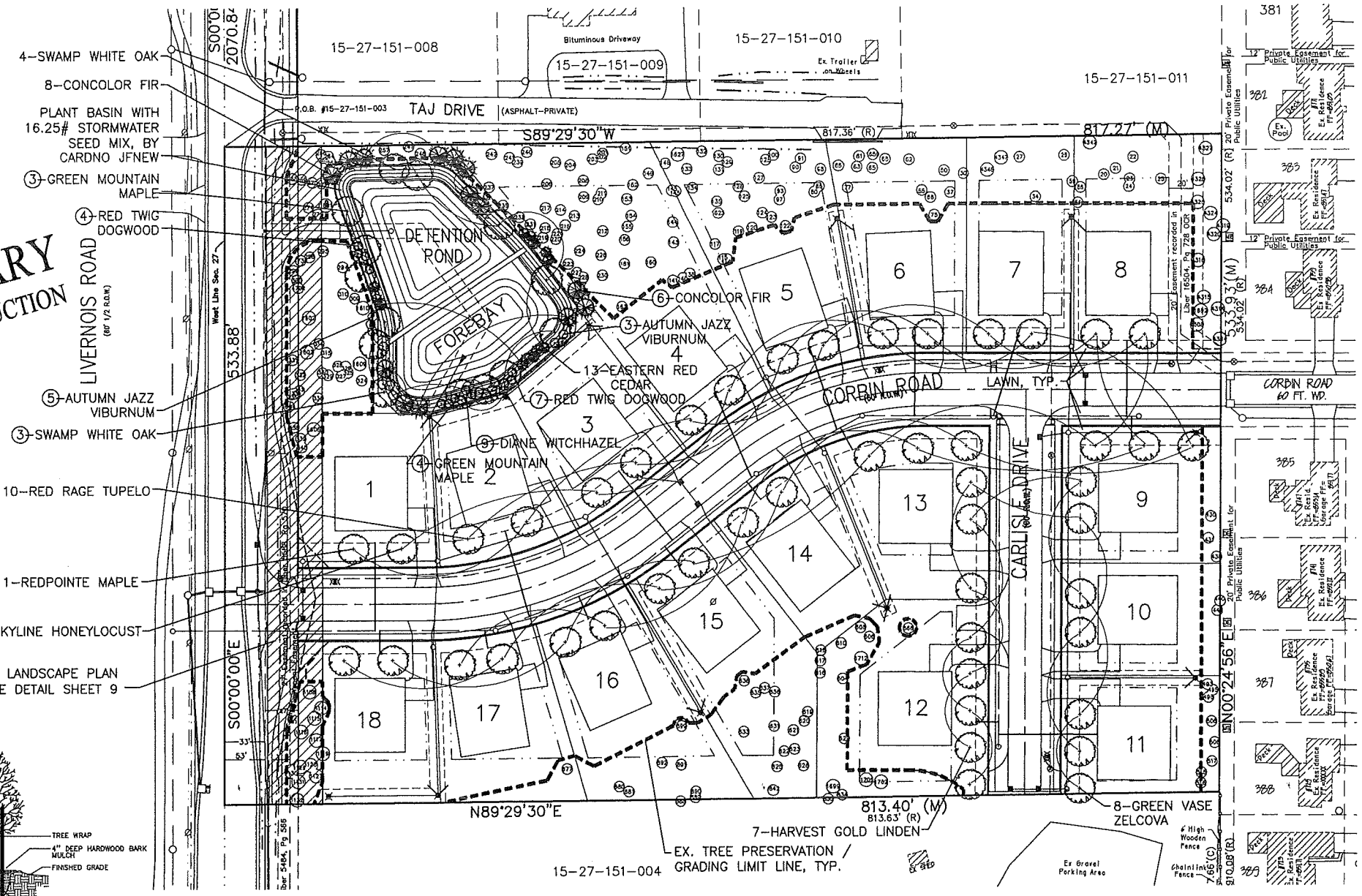
SHRUBS:

NO.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING
8	AUTUMN JAZZ VIBURNUM	VIBURNUM DENTATUM 'RALPH SENIOR'	30" HT. B.&B.	6' O.C.
9	DIANE WITCHHAZEL	HAMAMELIS X INTERMEDIA 'DIANE'	30" HT. B.&B.	6' O.C.
11	RED TWIG DOGWOOD	CORNUS SERICEA F. 'BAILEY'	30" HT. B.&B.	6' O.C.

PERENNIALS AND GRASSES:

16.3# STORMWATER SEED MIX BY CARDNO JFNEW
 *SUBSTITUTIONS TO BE APPROVED BY LANDSCAPE ARCHITECT.

**PRELIMINARY
 NOT FOR CONSTRUCTION**



CITY FILE # 14-001

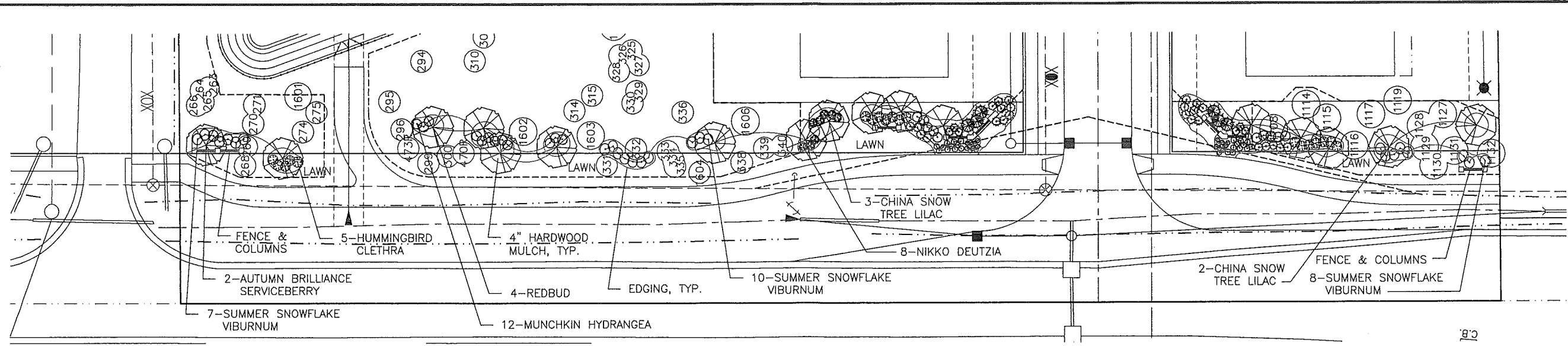
DATE: 04/11/17
 PREPARED BY: JAZZALIZAL PERE-CITY REVIEW
 COMMENTS: JAZZALIZAL PERE-CITY REVIEW
 COMMENTS:
 DRAWN BY: J.A.
 DRAWING # : 1080

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 associates, L.L.C.
 landscape architects & site planners
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 COLUMBIAN, MD 21046



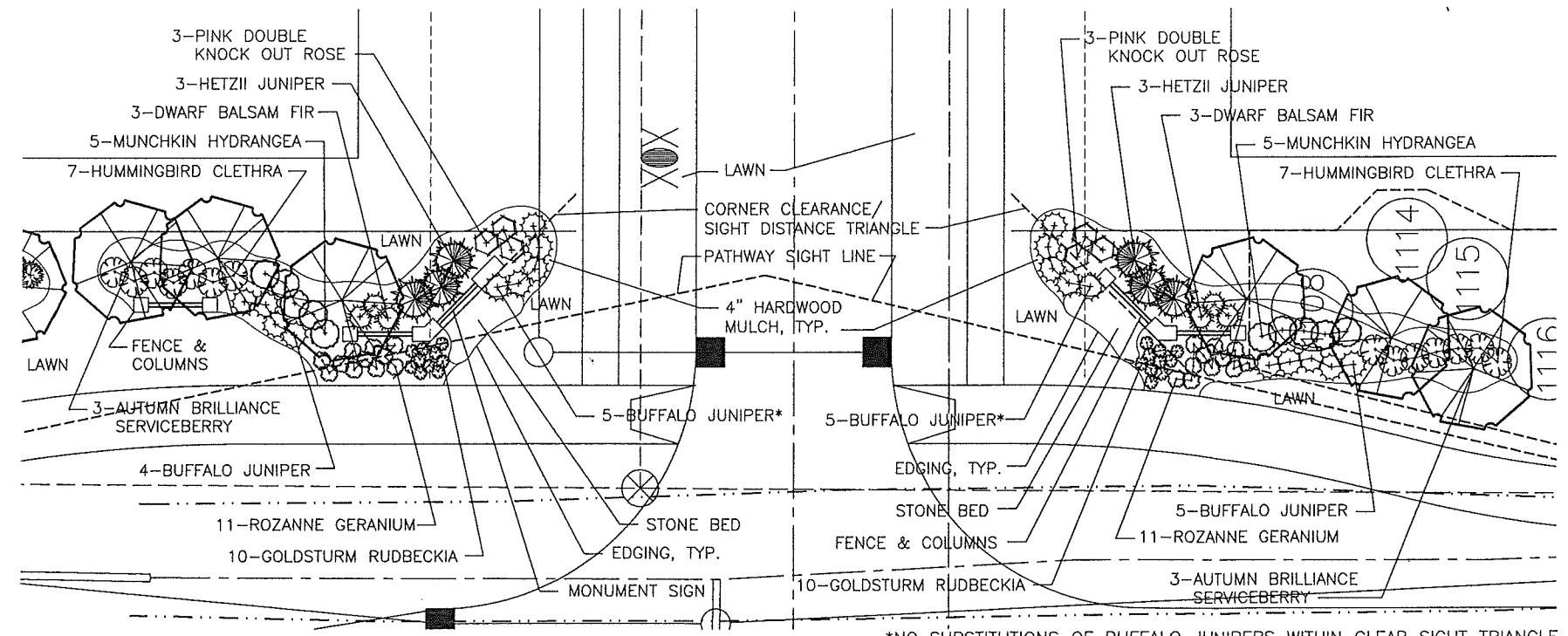
LANDSCAPE DETAILS

Cumberland Pointe
 Rochester Hills, Oakland County, Michigan



LIVERNOIS ROAD LANDSCAPE PLAN

SCALE: 1" = 20'



ENTRANCE LANDSCAPE PLAN

SCALE: 1" = 10'

PLANT LIST

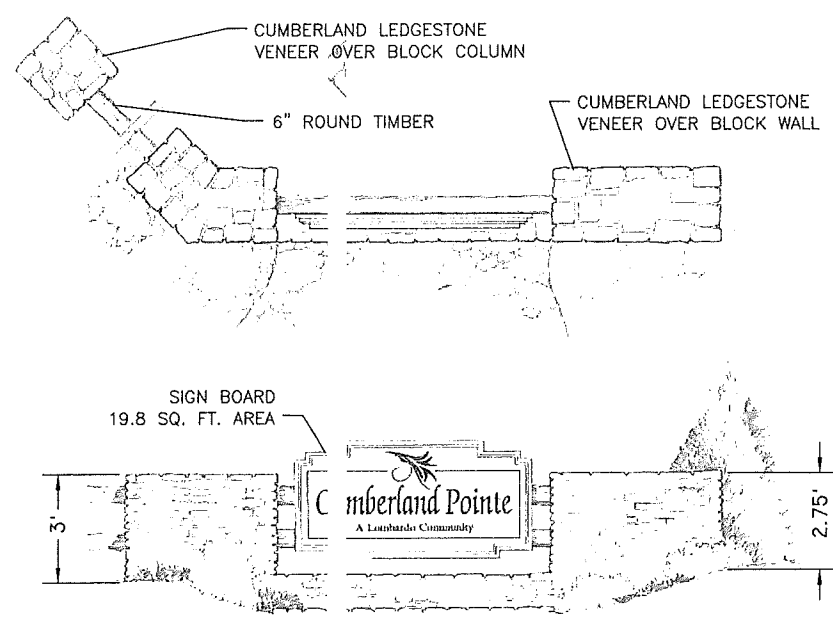
TREES:			
NO.	COMMON NAME	BOTANICAL NAME	TREE CREDITS
8	AUTUMN BRILLIANCE SERVICEBERRY (MULTI-STEM)	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	3" CAL. B.&B. 12' O.C. 2 PER TREE
5	CHINA SNOW TREE LILAC	SYRINGA PEKINENSIS 'MORTON'	3" CAL. B.&B. 12' O.C. 2 PER TREE
6	HETZII JUNIPER	JUNIPERUS CHINENSIS 'HETZII'	8' HT. B.&B. 4' O.C. 1 PER TREE
4	REDBUD	CERCIS CANADENSIS	3" CAL. B.&B. 12' O.C. 2 PER TREE
SHRUBS:			
NO.	COMMON NAME	BOTANICAL NAME	SPACING
19	BUFFALO JUNIPER	JUNIPERUS SABINA 'BUFFALO'	24" SPD. B.&B. 3' O.C.
6	DWARF BALSAM FIR	ABIES BALSAMEA 'NANA'	24" SPD. B.&B. 2.5' O.C.
19	HUMMINGBIRD CLETHRA	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	30" HT. B.&B. 3' O.C.
22	MUNCHKIN HYDRANGEA	HYDRANGEA QUERCIFOLIA 'MUNCHKIN'	30" HT. B.&B. 3' O.C.
8	NIKKO DEUTZIA	DEUTZIA GRACILIS 'NIKKO'	30" HT. B.&B. 3' O.C.
6	PINK DOUBLE KNOCK OUT ROSE	ROSA 'RADTKOPINK' PP#18,507	24" SPD. B.&B. 3' O.C.
25	SUMMER SNOWFLAKE VIBURNUM	VIBURNUM PLICATUM 'SUMMER SNOWFLAKE'	30" HT. B.&B. 3.5' O.C.
PERENNIALS:			
NO.	COMMON NAME	BOTANICAL NAME	SPACING
20	GOLDSTURM RUDBECKIA	RUDBECKIA FULDIGA 'GOLDSTURM'	1 GAL. CONT. 1.5' O.C.
22	ROZANNE GERANIUM	GERANIUM MACULATUM 'ROZANNE'	1 GAL. CONT. 2' O.C.

*SUBSTITUTIONS TO BE APPROVED BY LANDSCAPE ARCHITECT.

LANDSCAPE NOTES

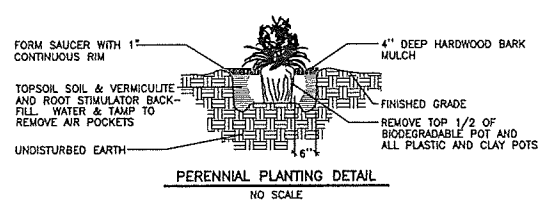
• PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD. SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC WALKWAY. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY LINES AT A DISTANCE ALONG EACH LINE OF 25' FROM THEIR POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT. SHADE AND EVERGREEN TREES MUST BE PLANTED AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 5' FROM AN UNDERGROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.

• PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF THE PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLY REPLACE, ANY SUCH TREES.



ENTRANCE SIGN CONCEPT SKETCH

NOT TO SCALE



PERENNIAL PLANTING DETAIL

NO SCALE

LEGEND

- ⊙ EXISTING TREE TO BE SAVED
- - - TREE PRESERVATION / GRADING LIMIT LINE
- ⊙ PROPOSED DECIDUOUS TREE
- ⊙ PROPOSED EVERGREEN TREE
- ⊙ PROPOSED ORNAMENTAL TREE
- ⊙ PROPOSED SHRUB



CITY FILE # 14-001