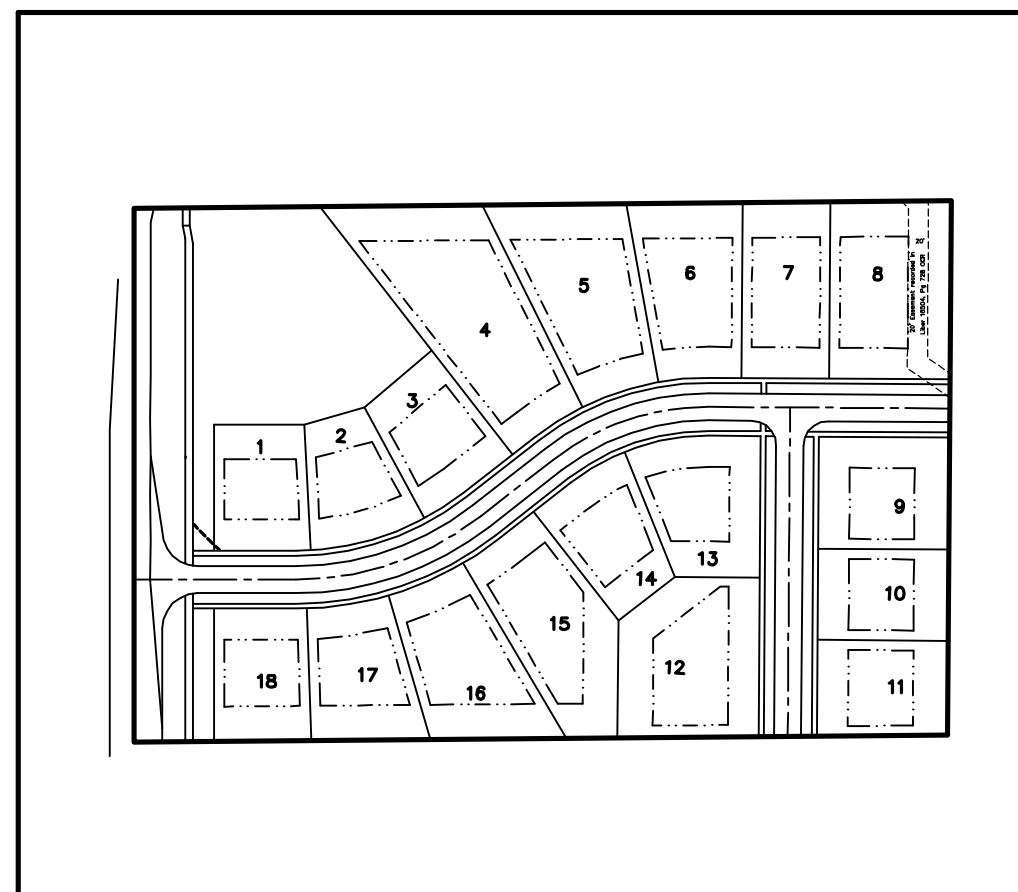


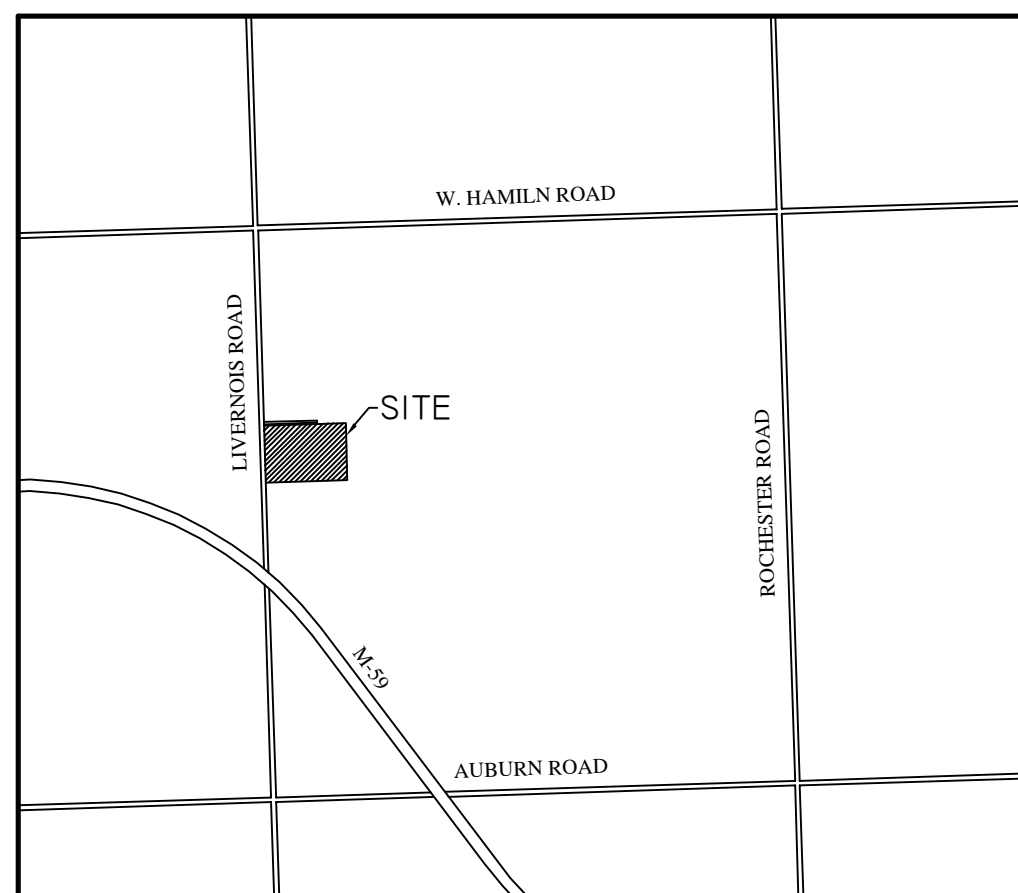
FINAL SITE CONDOMINIUM COMMUNITY SITE PLANS

IN SECTION 27, T3N, R1E, ROCHESTER HILLS,
OAKLAND COUNTY, MICHIGAN



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.1E., 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 813.63' (AS RECORDED) 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°24'45"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	836.30
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 (HAND) DENOTES EXISTING	

SHEET INDEX:

0 OF 9	COVER SHEET
1 OF 9	FINAL 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



DATE: 3/11/2014
REVISIONS: 5/27/2014, PER CITY REVIEW
COMMENTS: 7/8/2014, PER CITY REVIEW
COMMENTS: 6/21/2015, PER APPROVAL
CONDITIONS
DRAWN BY: JLB Drawing #: 1080

SHEET No.
0 OF 9

CITY FILE # 14-001

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

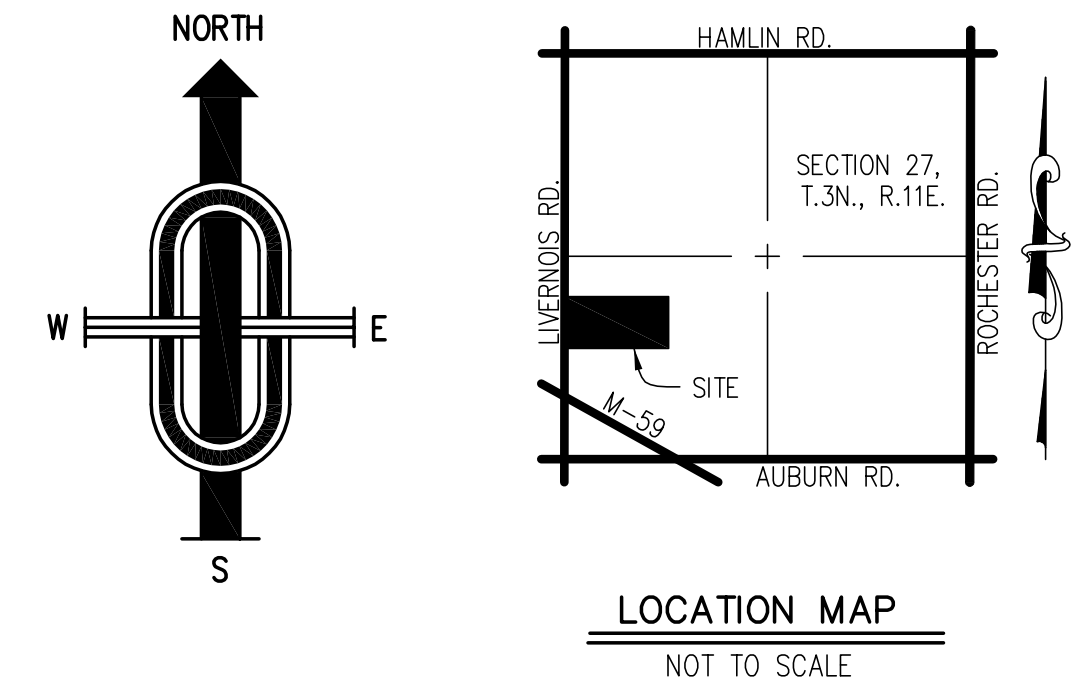
15-27-151-008

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 RECORDED) 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°24'45"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) --- 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)



LOCATION MAP
NOT TO SCALE

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'	21,496 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'	170.56'	17,857 SF
17	90.84'	136.43'	13,790 SF
18	93.87'	132.00'	12,504 SF
	98.77'	154.58'	16,225 SF AVERAGE

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

PREPARED FOR:
GREG WINDINGLAND
LOMBARDO HOMES
51237 DANVIEW TECHNOLOGY PARK DRIVE
SHELBY TOWNSHIP, MI 48315
(586) 781-2364
gwindingland@lombardohomes.com

PREPARED BY:
COMMUNITY E.S., INC.
C/O RICHARD HOODSON, P.E. #48078
6303 26 MILE ROAD, STE. 110
WASHINGTON, MI 48094
PH: (586) 677-4081
FX: (586) 677-4084
E-MAIL: RICH@COMMUNITYENG.COM

© 2013 - COMMUNITY E.S., INC. ALL RIGHTS RESERVED. THESE PLANS AND DRAWINGS ARE OWNED BY AND THE SOLE PROPERTY OF COMMUNITY E.S., INC. ANY REPRODUCTION, COPYING, REUSE OR DISTRIBUTION OF THESE PLANS AND DRAWINGS IS STRICTLY PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF COMMUNITY E.S., INC.

REV. 4/21/15 FINAL SITE PLAN
REV. 7/8/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/28/14 FORMAL SUBMITTAL TO CITY.

COMMUNITY
CIVIL ENGINEERING & SURVEYING

Call Engineering and Surveying
6303 26 Mile Road, Suite 110
Washington, Michigan 48094
Telephone (586) 677-4081
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 **1** OF **9**
CHECKED BY **R.S.H.** DRAWING **Z-13-037**

FINAL SITE PLAN

15-28-200-192

15-28-200-024

15-28-200-025

15-28-277-017

15-28-277-018

15-28-277-019

ROCHELLE
PARK DR.

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

S00°00'00"E
2070.84'

WEST LINE SEC. 27
EXISTING 33' R.O.W.
16.16' 16.54'

533.88'

S00°00'00"E
533.88'

S00°00'00"E
436.17'

EX. 60' R.O.W.

EX. WALK

RE-GRADE EXISTING SWALE

EXISTING 60' R.O.W.

EXISTING 33' R.O.W.

EX. WALK

PROPOSED 8' PATHWAY

PROPOSED 8' PATHWAY

PROPOSED 8' PATHWAY

PROPOSED 8' PATHWAY

EX. HYDRANT (TYP.)

PROPOSED 12' POND ACCESS DRIVE

PROPOSED HYDRANT (TYP.)

PROPOSED 14' WIDE SPEED HUMP PER CITY STANDARD DETAILS (2 TOTAL)

PROVIDE HEAVY DUTY ASPHALT FOR PROPOSED IMPROVEMENTS WITHIN THE LIVERNOIS ROAD R.O.W. TO MEET ROC STANDARDS-SEE DETAIL ON SHEET 6.

EX. HYDRANT (TYP.)

EX. HYDRANT (TYP.)

EX. HYDRANT (TYP.)

EX. HYDRANT (TYP.)

EX. HYDRANT (TYP.)

EX. TRAILER ON WHEELS

EX. TRAILER ON WHEELS

EX. TRAILER ON WHEELS

EX. TRAILER ON WHEELS

EX. TRAILER ON WHEELS

EX. POOL

EX. POOL

EX. POOL

EX. POOL

EX. POOL

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

EX. RESIDENCE

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

15-28-200-192

15-28-200-024

15-28-200-025

15-28-277-018

15-28-277-019

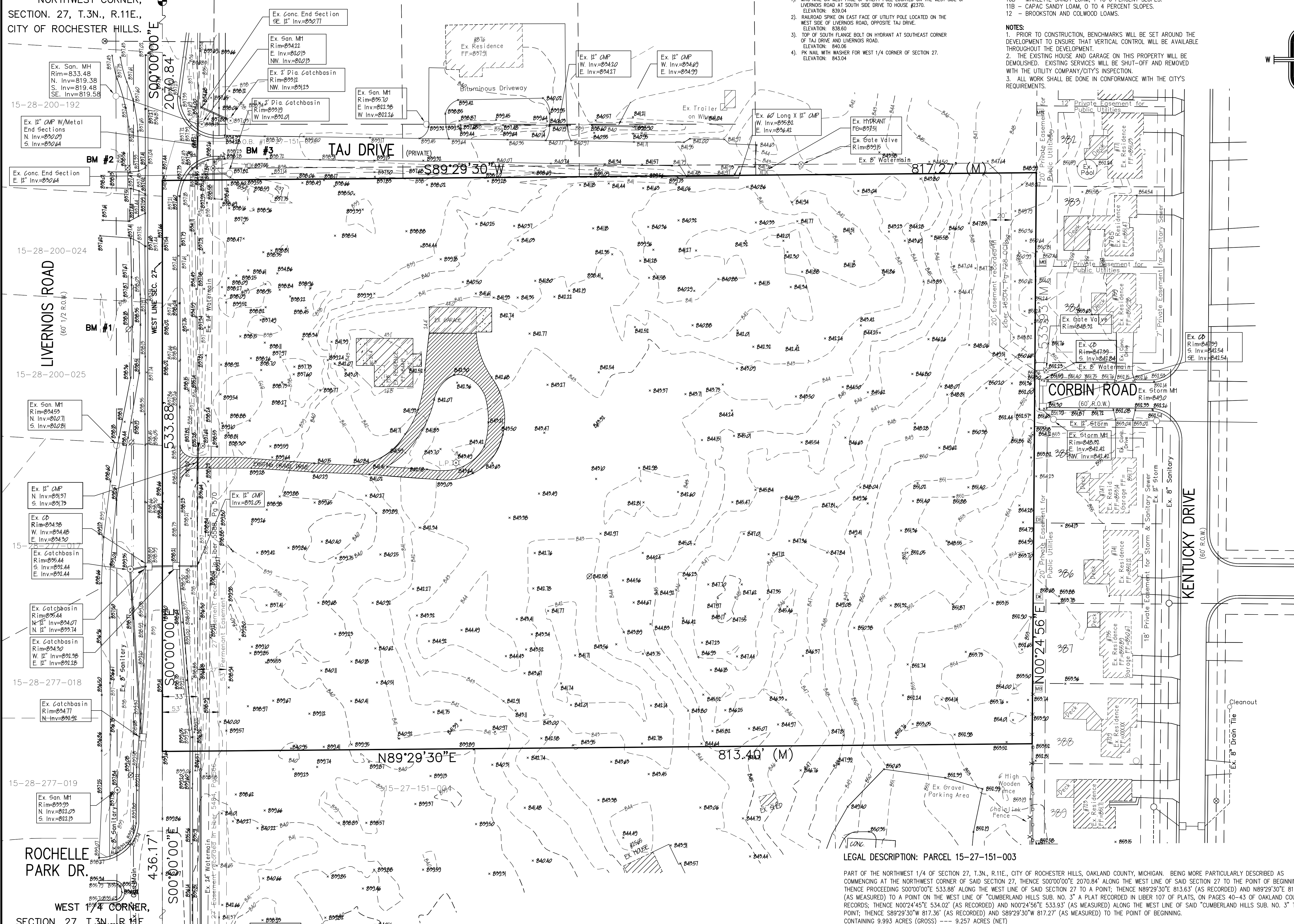
ROCHELLE
PARK DR.

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

15-27-151-008

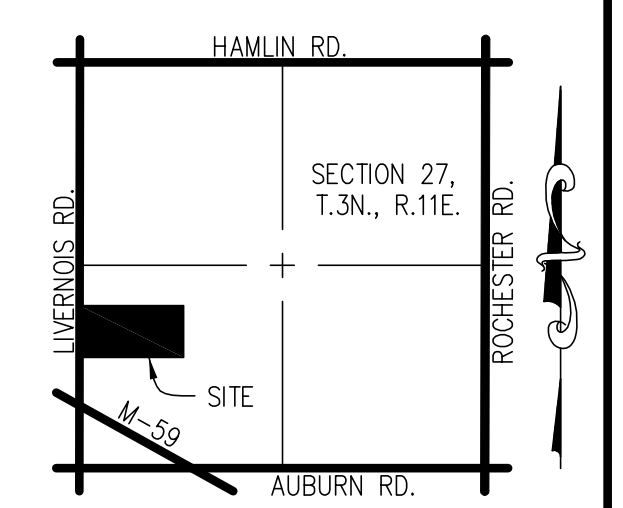
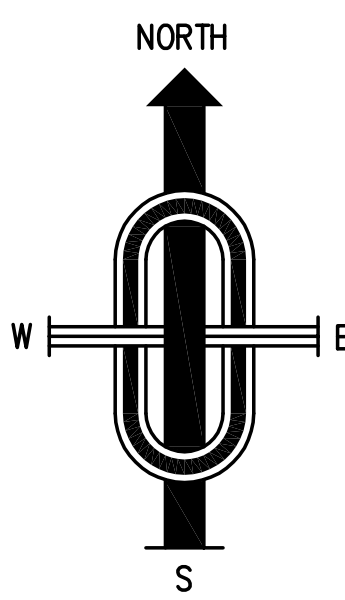
15-27-151-009

15-27-151-010



- BENCHMARKS (NAVD 88 DATUM):**
- MAG NAIL ON WEST FACE OF UTILITY POLE LOCATED ON THE WEST SIDE OF LIVERNOIS ROAD AT SOUTH SIDE DRIVE TO HOUSE #370. ELEVATION: 838.60
 - RAILROAD SPIKE ON EAST FACE OF UTILITY POLE LOCATED ON THE WEST SIDE OF LIVERNOIS ROAD, OPPOSITE TAJ DRIVE. ELEVATION: 840.06
 - TOP OF SOUTH FLANGE BOLT ON HYDRANT AT SOUTHEAST CORNER OF TAJ DRIVE AND LIVERNOIS ROAD. ELEVATION: 843.04
 - PK NAIL WITH WASHER FOR WEST 1/4 CORNER OF SECTION 27. ELEVATION: 843.04

- SOIL TYPES:**
- 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES.
 - 11B - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES.
 - 12 - BROOKSTON AND COLWOOD LOAMS.
- NOTES:**
- PRIOR TO CONSTRUCTION, BENCHMARKS WILL BE SET AROUND THE DEVELOPMENT TO ENSURE THAT VERTICAL CONTROL WILL BE AVAILABLE THROUGHOUT THE DEVELOPMENT.
 - 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.
 - ALL WORK SHALL BE DONE IN CONFORMANCE WITH THE CITY'S REQUIREMENTS.



LOCATION MAP
NOT TO SCALE

- LEGEND**
- △ CONTROL POINT
 - ⊗ 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/BRUSH LINE
 - EA - EDGE OF ASPHALT
 - EC - EDGE OF CONCRETE
 - TC - TOP OF CURB
 - GU - GUTTER
 - TB - TOP OF BANK
 - THIS TEXT TYPE (HAND) 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.

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 533.88' 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 813.63' (AS RECORDED) 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°24'45"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) --- 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)

REV. 4/21/15 FINAL SITE PLAN
REV. 7/8/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/28/14 FORMAL SUBMITTAL TO CITY.

COMMUNITY
CIVIL ENGINEERING & SURVEYING

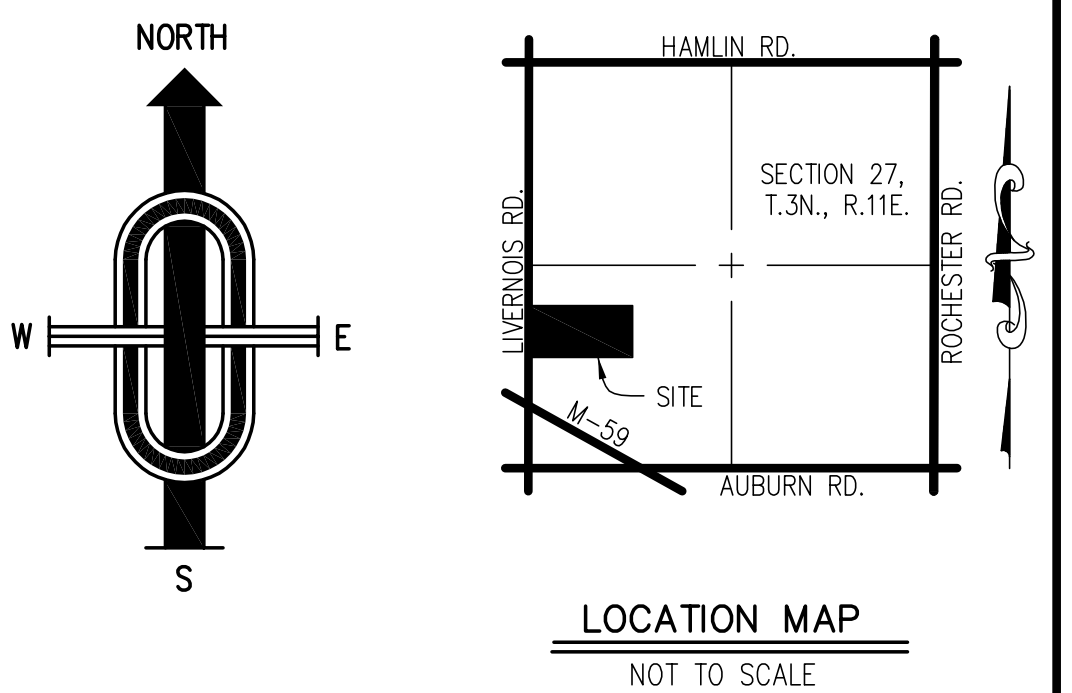
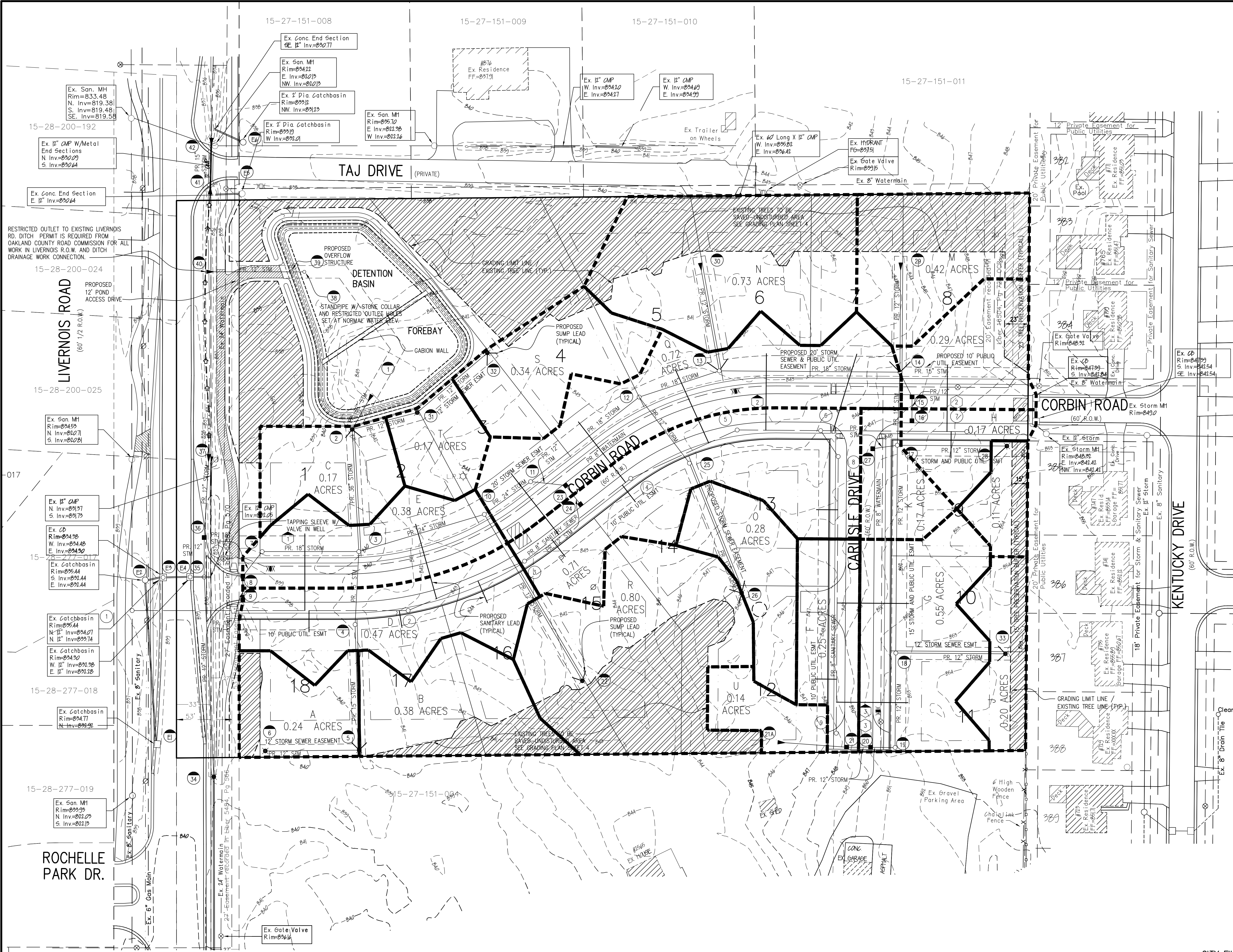
Call Engineering and Surveying
6303 26 Mile Road, Suite 110
Washington Twp., Michigan 48094
Telephone (586) 877-4081
www.communityeng.com

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

CITY FILE #14-001



- NOTES:**
- CONTRACTOR SHALL VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES.
 - SEE SHEET 5 FOR PRELIMINARY SIZING CALCULATIONS FOR THE PROPOSED CULVERT AT THE ENTRANCE OFF OF LIVERNOIS ROAD.
 - 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.
 - A PERMIT IS REQUIRED FROM THE ROAD COMMISSION FOR OAKLAND COUNTY FOR THE CONNECTION TO THE ROADSIDE DITCH ALONG LIVERNOIS ROAD.
 - FINAL CONSTRUCTION PLANS SHALL INCLUDE PLAN AND PROFILE VIEWS AND HYDRAULIC GRADE LINE FOR ALL STORM LINES. CROSS-SECTIONS, SLOPES, ECT. SHALL BE PROVIDED FOR ALL EXISTING AND PROPOSED OPEN DRAINAGE COURSES. DESIGN CALCULATIONS SHALL BE PROVIDED FOR ALL DRAINAGE FACILITIES PROPOSED AND EXISTING.
 - THE MINIMUM STORM SEWER PIPE SIZE WILL BE 12" DIAMETER.
 - 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 WITH NO.	⊕
EXISTING HYDRANT	⊕
PROPOSED HYDRANT WITH NO.	⊕
SANITARY SEWER STRUCTURE NO.	⊕
STORM SEWER STRUCTURE NO.	⊕
SIGN	⊕
UTILITY POLE	⊕
DRAINAGE ARROW	→
EXISTING FENCE	---
CL ROAD OR DITCH AS NOTED	---
EXISTING TREE/BRUSH SCHEDULED TO BE SAVED	⊕
TC= TOP OF CURB	⊕
GU= GUTTER	⊕
THIS TEXT TYPE (HAND) DENOTES EXISTING	---

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

REV. 4/21/15 FINAL SITE PLAN
 REV. 7/8/14 PER CITY REVIEW COMMENTS
 REV. 5/27/14 PER CITY REVIEW COMMENTS
 REV. 2/28/14 FORMAL SUBMITTAL TO CITY.

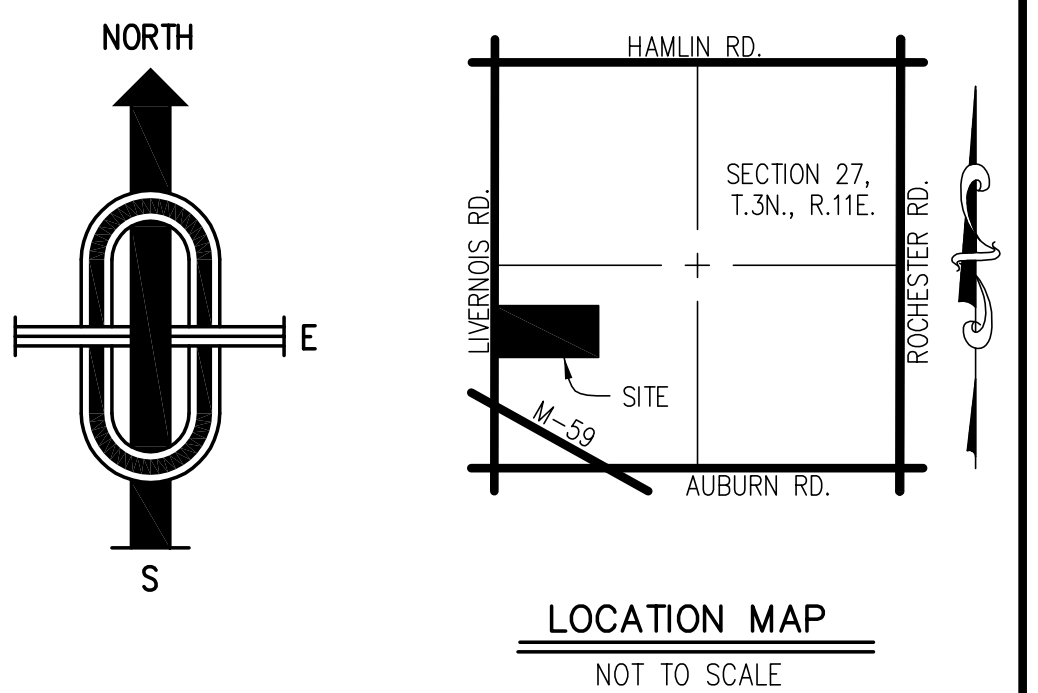
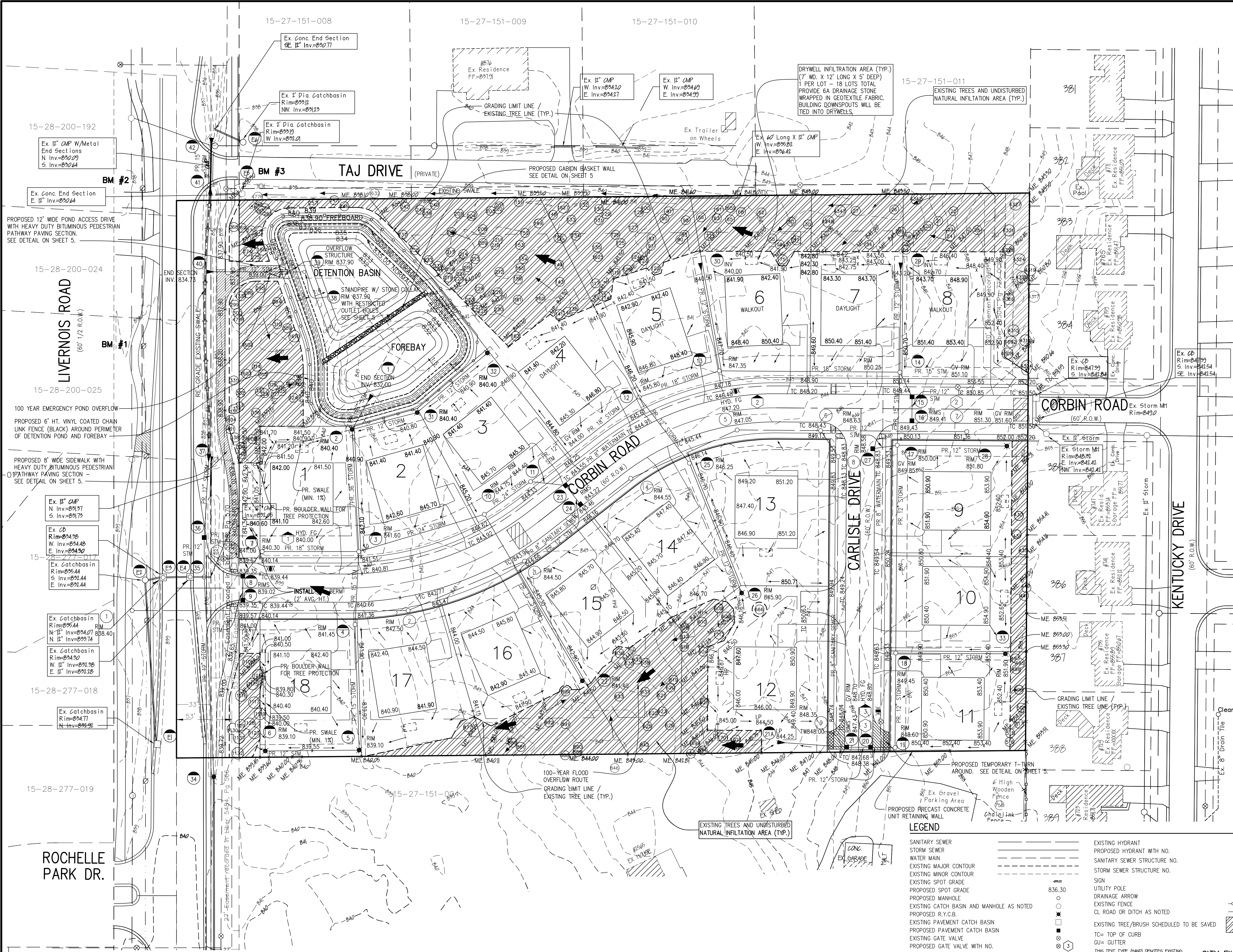
COMMUNITY CIVIL ENGINEERING & SURVEYING

3500 Engineering and Surveying
 6303 26 Mile Road, Suite 110
 Washington Twp., Michigan 48094
 Telephone (586) 677-4081
 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 **3 OF 9**
 CHECKED BY **R.S.H.** DRAWING **Z-13-037**

UTILITY PLAN



- 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 OPERATION 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 SEDIMENT 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.

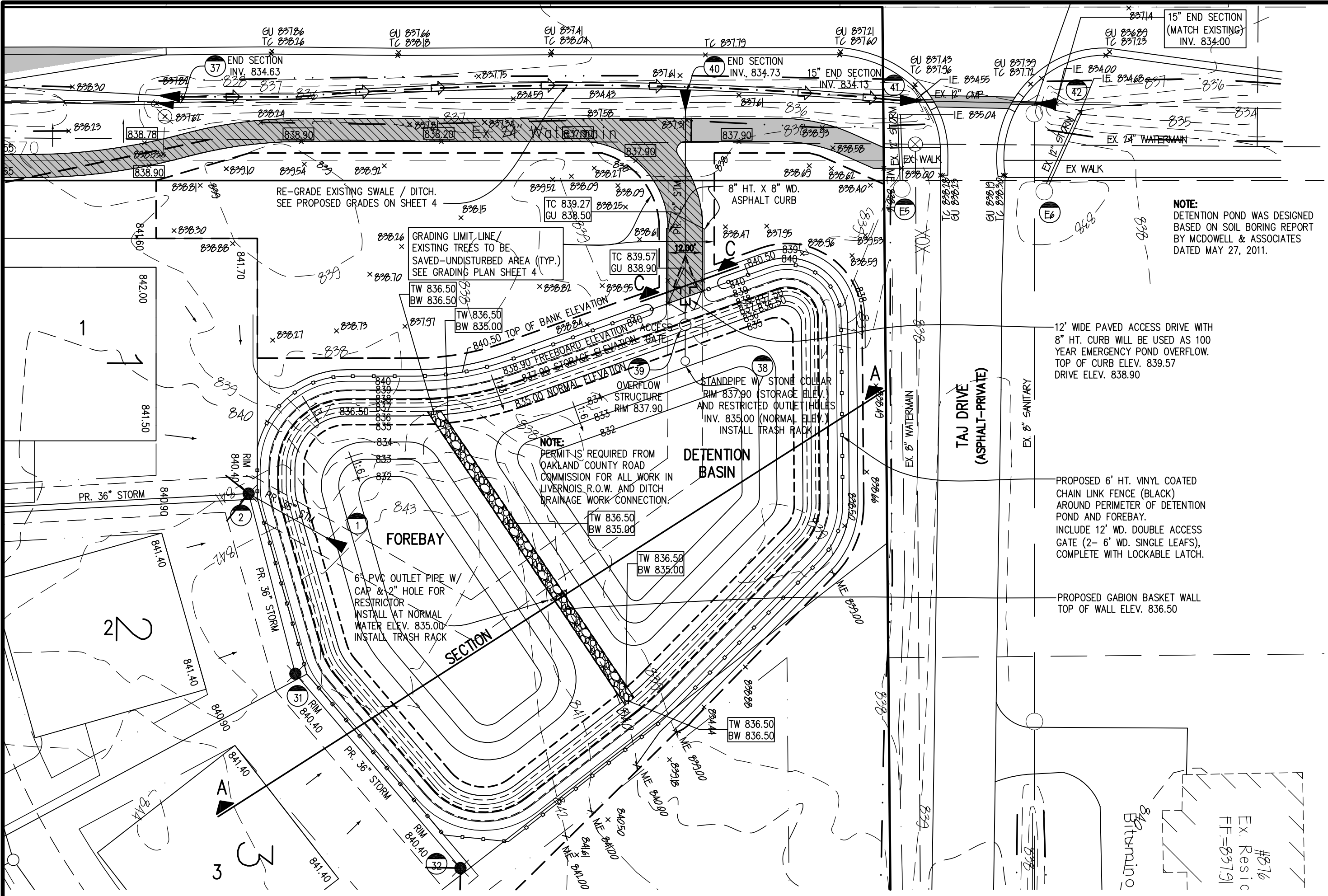
- CONSTRUCTION SEQUENCE:**
1. CLEAR TREES, BRUSH, AND STUMPS FROM DESIGNATED CLEARING AREAS. ALL STUMPS, CHIPS, AND DEBRIS SHALL BE DISPOSED OFF-SITE.
 2. MASS GRADE SITE, INCLUDING EXCAVATION OF DETENTION POND, MAINTAIN EROSION CONTROL AS REQUIRED.
 3. INSTALL SANITARY SEWER, WATERMAIN AND STORM SEWER. IMMEDIATELY AFTER INSTALLATION OF STORM SEWER INSTALL STONE AND SOO 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 16" 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 SITE 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.

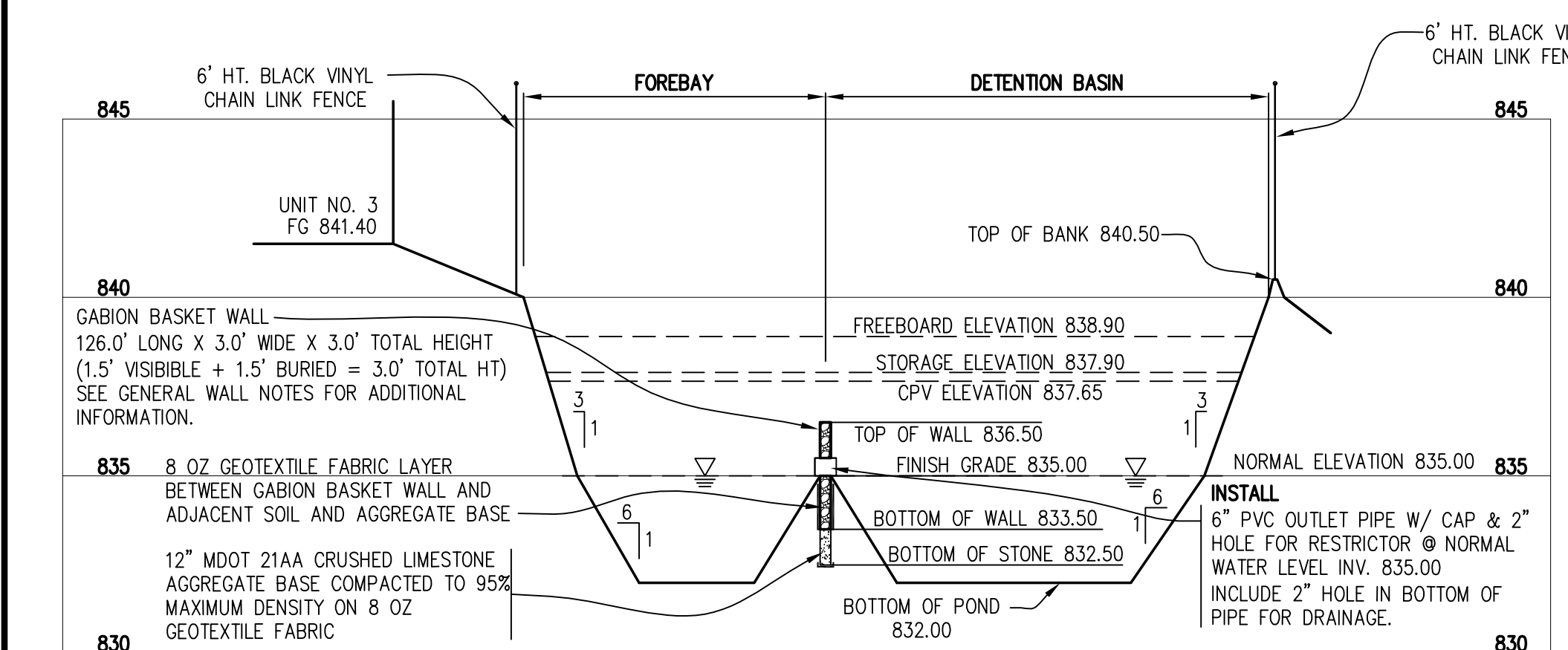
- GRADING NOTES:**
1. THE BOXES SHOWN ARE TO REPRESENT THE ESTIMATED HOME LOCATION. ACTUAL HOME SIZING, LOCATION AND GRADING WILL BE DETERMINED AT THE TIME THE PLOT PLAN IS PREPARED.
 2. NO WORK WILL BE PERMITTED IN A WETLAND AREA UNLESS A PERMIT HAS BEEN ISSUED TO DO SO.
 3. ALL GRADE IN PAVEMENT AREA 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%.
 5. THESE SWALES ARE REQUIRED TO BE ESTABLISHED BY THE DEVELOPER WHEN THE SITE IS ROUGH GRADED.
 6. SLOPES BETWEEN 2% AND 4.5% WILL BE SODDED. SLOPES GREATER THAN 4.5% WILL BE SODDED AND STAKED.
 7. ALL PROPOSED GRADES WILL MATCH THE EXISTING AT THE PERIMETER OF THE SITE (SITE FENCE LOCATION).
 8. A PERMANENT BENCHMARK WILL BE ESTABLISHED ON-SITE PRIOR TO STARTING WORK.
 9. ALL DRAINAGE SWALES SHALL BE A MINIMUM SLOPE OF 1%.

LEGEND

<p>SANITARY SEWER</p> <p>STORM SEWER</p> <p>WATER MAIN</p> <p>EXISTING MAJOR CONTOUR</p> <p>EXISTING MINOR CONTOUR</p> <p>EXISTING SPOT GRADE</p> <p>PROPOSED SPOT GRADE</p> <p>PROPOSED MANHOLE</p> <p>EXISTING CATCH BASIN AND MANHOLE AS NOTED</p> <p>PROPOSED R.Y.C.B.</p> <p>EXISTING PAVEMENT CATCH BASIN</p> <p>PROPOSED PAVEMENT CATCH BASIN</p> <p>EXISTING GATE VALVE</p> <p>PROPOSED GATE VALVE WITH NO.</p>	<p>EXISTING HYDRANT</p> <p>PROPOSED HYDRANT WITH NO.</p> <p>SANITARY SEWER STRUCTURE NO.</p> <p>STORM SEWER STRUCTURE NO.</p> <p>SIGN</p> <p>UTILITY POLE</p> <p>DRAINAGE ARROW</p> <p>EXISTING FENCE</p> <p>CL ROAD OR DITCH AS NOTED</p> <p>EXISTING TREE/BRUSH SCHEDULED TO BE SAVED</p> <p>TC= TOP OF CURB</p> <p>GU= GUTTER</p> <p>THIS TEXT TYPE (HAND) DENOTES EXISTING</p>	<p>3 1/2" WOODEN SIGN BEFORE YOU DIG CALL MISS DIG 1-800-482-7171</p> <p>REV. 4/21/15 FINAL SITE PLAN</p> <p>REV. 7/8/14 PER CITY REVIEW COMMENTS</p> <p>REV. 5/2/14 PER CITY REVIEW COMMENTS</p> <p>REV. 2/28/14 FORMAL SUBMITTAL TO CITY.</p> <p>COMMUNITY CIVIL ENGINEERING & SURVEYING</p> <p>CUMBERLAND POINTE</p> <p>PART OF THE NORTHWEST 1/4 OF SECTION 27, T.3N., R.1E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN</p> <p>DATE Aug. 23, 2013 SCALE 1"=40'</p> <p>DRAWN BY J.M.B. SHEET 4 OF 9</p> <p>CHECKED BY R.S.H. DRAWING Z-13-037</p> <p>GRADING PLAN & DRAINAGE AREA MAP</p> <p>CITY FILE #14-001</p>
---	--	---

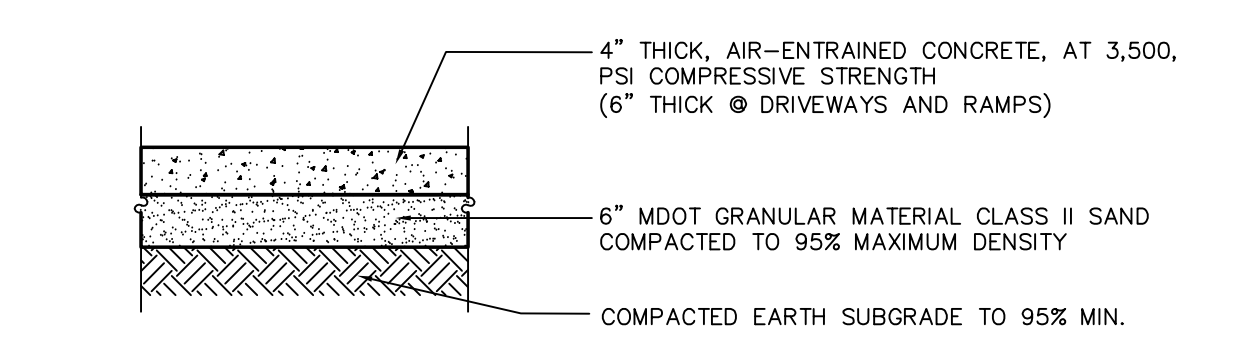


DETENTION POND & FOREBAY DETAILED LAYOUT PLAN
SCALE: 1"=30'

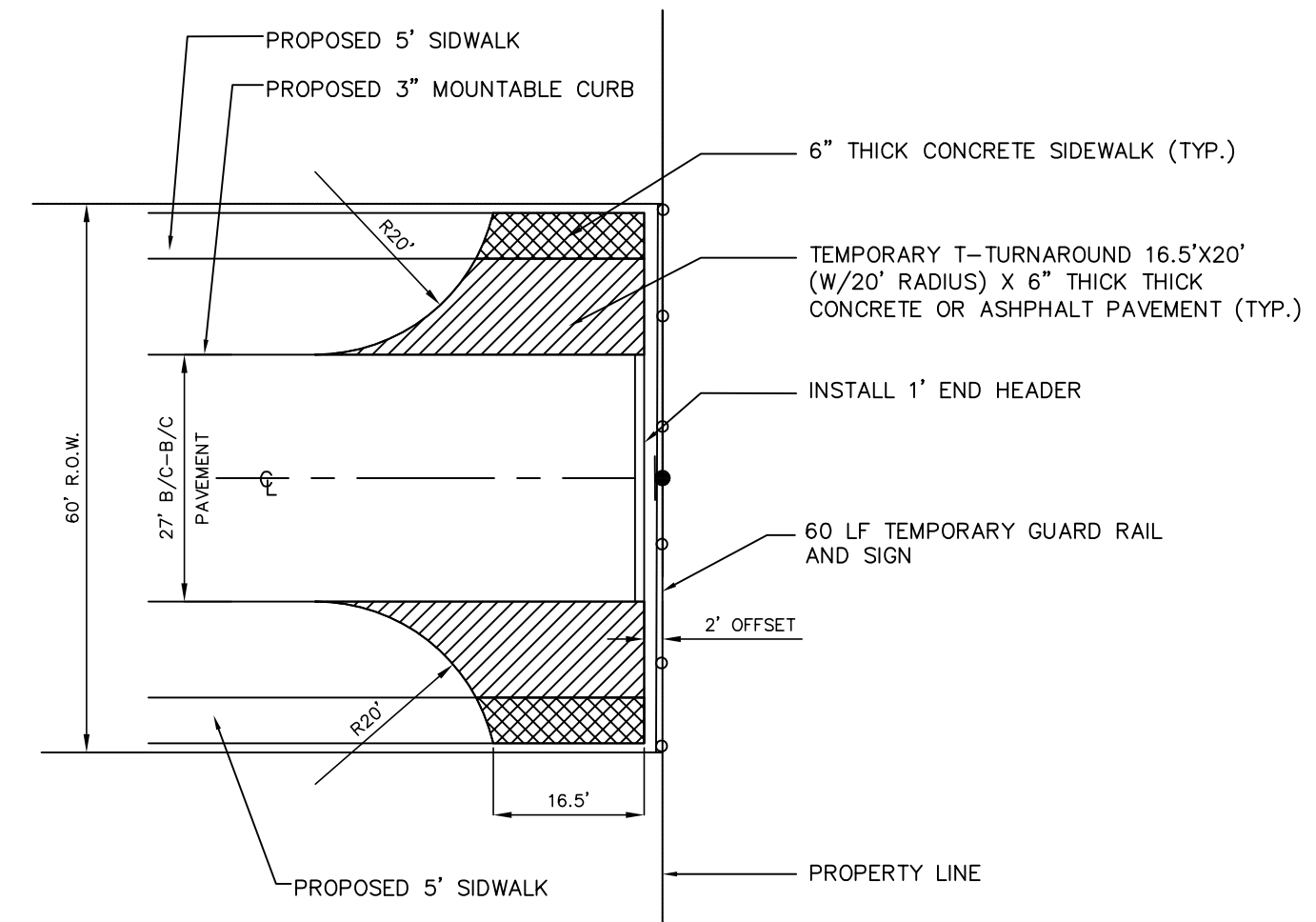


3" MOUNTABLE CONC. CURB & GUTTER DETAIL "ONSITE"
(RCC STANDARD DETAIL)
NOT TO SCALE

DEEP STRENGTH BITUMINOUS PAVEMENT (SITE ROADS)
NOT TO SCALE



TEMPORARY T-TURN AROUND PAVING LAYOUT DETAIL
NOT TO SCALE



FROM MH	TO MH	ACRES	IMPERV. FACTOR	EQUIV. AREA A	ADD. AREA A	SUM OF A+C	INTENSITY I	TIME OF CONCENTRATION	RUNOFF (CFS) Q	LENGTH OF PIPE	PIPE DIAMETER IN	HYDRAULIC SLOPE %	ACTUAL VELOCITY FULL (FPS)	HYDRAULIC VELOCITY FULL (FPS)	ACTUAL VELOCITY FULL (FPS)	FLOW TIME (MIN)	FLOW Q (CFS)	HG ELEV UPPER	HG ELEV LOWER	RM ELEV UPPER	INVERT UPPER	INVERT LOWER	FROM MH	TO MH	
6	5	A	0.24	0.58	0.14	0.14	3.89	20.00	0.54	90	12	0.02%	0.32%	0.69	2.57	0.00	2.02	838.08	838.06	839.10	834.93	834.64	6	5	
5	4	B	0.38	0.58	0.22	0.36	3.89	20.00	1.40	120	15	0.05%	0.24%	1.14	2.59	0.00	3.17	838.01	838.01	839.10	834.34	834.05	5	4	
4	3			0.58	0.00	0.58	3.89	20.00	1.40	70	15	0.05%	0.24%	1.14	2.59	0.00	3.17	838.01	837.97	841.45	834.05	833.88	4	3	
3	2			0.58	0.00	3.70	4.06	3.54	24.43	14.37	117	36	0.05%	0.08%	2.03	2.68	0.96	18.92	837.97	837.92	841.60	832.12	832.03	3	2
2	1	C	0.26	0.58	0.15	0.30	4.51	3.47	25.39	15.65	36	36	0.05%	0.08%	2.21	2.68	0.29	18.92	837.97	837.90	840.40	832.03	832.00	2	1
8	8	D	0.47	0.58	0.27	0.27	3.89	20.00	1.05	24	18	0.01%	1.00%	0.59	5.96	0.00	10.53	838.02	838.02	839.02	834.85	834.61	8	8	
8	7	E	0.38	0.58	0.22	0.49	3.89	20.00	1.91	30	18	0.03%	0.20%	1.08	2.67	0.00	4.71	838.02	838.01	839.02	834.61	834.55	8	7	
7	3			0.58	0.00	0.49	3.89	20.00	1.91	93	18	0.03%	0.20%	1.08	2.67	0.00	4.71	838.01	837.97	840.30	834.45	834.26	7	3	
21A	21	U	0.14	0.58	0.08	0.08	3.89	20.00	0.31	66	12	0.01%	1.50%	0.40	5.57	0.00	4.38	845.05	844.06	844.25	844.25	843.26	21A	21	
21	20	F	0.25	0.58	0.15	0.23	3.89	20.00	0.89	24	12	0.06%	1.00%	1.14	4.55	0.00	3.57	844.06	843.89	847.43	843.26	843.02	21	20	
20	19	G	0.55	0.58	0.32	0.55	3.89	20.00	2.14	24	12	0.36%	0.32%	2.72	2.57	0.15	2.14	843.89	843.80	847.43	843.02	842.94	20	19	
19	18			0.58	0.00	0.55	3.89	20.15	2.13	91	12	0.36%	0.32%	2.72	2.57	0.56	2.13	843.80	843.48	848.60	842.84	842.55	19	18	
18	17			0.58	0.00	0.12	0.67	3.83	20.71	257	199	12	0.52%	0.40%	3.27	2.88	1.02	2.57	843.48	842.45	849.45	842.45	841.65	18	17
17	14			0.58	0.00	0.16	0.83	3.75	21.72	3.11	17	15	0.23%	0.24%	2.54	2.59	0.46	3.17	842.45	842.28	850.00	841.45	841.28	17	14
14	13			0.58	0.00	0.51	1.54	3.71	22.18	4.97	174	18	0.22%	1.03%	2.81	6.05	1.03	10.69	842.28	840.49	850.25	841.08	839.29	14	13
13	12			0.58	0.00	0.42	1.76	3.63	23.21	6.39	80	18	0.37%	0.50%	3.62	4.21	0.37	7.45	840.49	840.09	847.35	839.29	838.89	13	12
12	11			0.58	0.00	0.16	1.92	3.60	23.58	6.91	132	18	0.43%	0.97%	3.91	5.87	0.56	10.37	840.09	838.81	845.80	838.89	837.61	12	11
11	10			0.58	0.00	0.83	2.75	3.56	24.14	9.79	54	24	0.19%	0.22%	3.12	3.39	0.29	10.64	838.81	838.69	844.40	837.21	837.09	11	10
10	3			0.58	0.00	0.46	3.21	3.54	24.43	11.36	125	24	0.25%	0.30%	3.62	3.95	0.58	12.42	838.29	837.97	844.73	834.48	834.10	10	3
33	18	J	0.20	0.58	0.12	0.12	3.89	20.00	0.47	105	12	0.02%	3.05%	0.59	7.94	0.00	6.24	848.53	845.33	851.90	847.73	844.53	33	18	
27	17	K	0.17	0.58	0.10	0.10	3.89	20.00	0.39	24	12	0.01%	2.00%	0.50	6.43	0.00	5.05	845.21	844.73	848.58	844.41	843.93	27	17	
28	17	L	0.11	0.58	0.06	0.06	3.89	20.00	0.23	105	12	0.00%	4.00%	0.30	9.10	0.00	7.14	848.43	844.23	851.80	847.63	843.43	28	17	
29	14	M	0.42	0.58	0.24	0.24	3.89	20.00	0.93	105	12	0.07%	1.00%	1.19	4.55	0.00	3.57	843.50	842.45	842.70	842.70	841.65	29	14	
30	13	N	0.73	0.58	0.42	0.42	3.89	20.00	1.63	105	12	0.21%	1.00%	2.08	4.55	0.00	3.57	841.70	840.49	840.90	840.90	839.85	30	13	
26	25	O	0.28	0.58	0.16	0.16	3.89	20.00	0.62	134	12	0.03%	0.32%	0.79	2.57	0.00	2.02	842.53	842.10	845.90	841.73	841.30	26	25	
25	12			0.58	0.00	0.16	3.89	20.00	0.62	80	12	0.03%	0.32%	0.79	2.57	0.00	2.02	842.10	841.84	846.25	841.30	841.04	25	12	
24	23	P	0.71	0.58	0.41	0.41	3.89	20.00	1.59	24	12	0.20%	1.00%	2.03	4.55	0.00	3.57	839.85	839.61	843.22	839.05	838.81	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	4.55	0.14	3.57	839.61	839.27	843.22	838.81	838.47	23	11	
22	10	R	0.80	0.58	0.46	0.46	3.89	20.00	1.79	185	12	0.25%	1.00%	2.28	4.55	0.00	3.57	838.85	838.39	841.40	837.23	835.38	22	10	
32	31	S	0.34	0.58	0.20	0.20	3.89	20.00	0.78	88	12	0.05%	1.00%	0.99	4.55	0.00	3.57	838.03	837.99	840.40	836.23	835.35	32	31	
31	2	T	0.17	0.58	0.10	0.30	3.89	20.00	1.17	64	12	0.11%	1.00%	1.49	4.55	0.00	3.57	837.99	837.92	840.40	835.35	834.71	31	2	
16	15	H	0.17	0.58	0.10	0.10	3.89	20.00	0.39	24	12	0.01%	1.00%	0.50	4.55	0.00	3.57	846.04	845.80	849.41	845.24	845.00	16	15	
15	14	I	0.29	0.58	0.17	0.27	3.89	20.00	1.05	26	12	0.09%	0.32%	1.34	2.57	0.00	2.02	845.80	845.72	849.41	845.00	844.92	15	14	

DETENTION CALCULATIONS:

C = 0.58 RUNOFF COEFFICIENT
 A = 9.257 ACRES
 Q = 0.20 CFS/ACRE
 ALLOWABLE RELEASE RATE: (0.20 CFS/ACRE)
 $Q_A = 9.257 \text{ ACRES} \times 0.20 = 1.85 \text{ CFS}$
 FLOODING PROTECTION (OVERBANK)
 25-YEAR FLOOD VOLUME REQUIRED:
 $Q_0 = \frac{Q}{A \times C} = 0.345 \text{ CFS/ACRE-IMP}$
 $T = -25 + \frac{(8,062.5 / 0.0)}{T}$
 $T = 127.87 \text{ MIN.}$
 $V_R = (12,900 \times T) / (T + 25) - 40T \times Q_0$
 $V_R = 9,026 \text{ CF/ACRE-IMP}$
 $V_{25} = V_S \times A \times C$
 $V_{25} = 48,461 \text{ CF (REQUIRED TOTAL FLOODING PROTECTION)}$

FOREBAY REQUIRED
 POST DEVELOPMENT WATER QUALITY
 1/2" STORM VOLUME REQUIRED:
 $W_0 = 1,815 \times A \times C$
 $W_0 = 1,815 \times (9.257) \times (0.58)$
 $W_0 = 9,745 \text{ CF (REQUIRED TOTAL WATER QUALITY)}$

CHANNEL PROTECTION (BANKFULL)
 1-YEAR FLOOD VOLUME REQUIRED:
 $C_{pv} = 6,788 \times A \times C$
 $C_{pv} = 6,788 \times (9.257) \times (0.58)$
 $C_{pv} = 36,445 \text{ CF (REQUIRED TOTAL CHANNEL PROTECTION)}$
 $C_{pv} \text{ ELEV} = 637.65$

FLOODING PROTECTION VOLUME PROVIDED:

AREA	VOLUME	TOTAL
WATER QUALITY (FOREBAY VOLUME)	12661	
CHANNEL PROTECTION	37092	
25-YEAR VOLUME	5372	
		55125 CF (PROPOSED TOTAL FLOOD PROTECTION)

WATER QUALITY VOLUME PROVIDED:

ELEVATION	AREA	VOLUME	TOTAL
835.0	7878	8252	8252
836.0	8625	4409	12661 CF (PROPOSED TOTAL WATER QUALITY/FOREBAY VOLUME)
836.50	9009		

CHANNEL PROTECTION VOLUME PROVIDED:

ELEVATION	AREA	VOLUME	TOTAL
835.0	8529	8957	8957
836.0	9384	4800	13757
836.50	9815		
836.50	18824	9869	23625
837.00	20159	13467	37092 CF (PROPOSED TOTAL CHANNEL PROTECTION)
837.65	21278		

WQ POND (25-YEAR) OUTLET CALCULATION FOR SIZING OUTLET TO LIVERNOIS RD. DITCH
 $Q_0 = 0.2 \text{ CFS/ACRE} \times 9.257 \text{ ACRES} = 1.85 \text{ CFS} - 0.42 \text{ CFS} = 1.43 \text{ CFS}$
 $Q_0 = 0.62 \times a \times \sqrt{2} \times g \times h = 1.43 \text{ CFS}$
 $g = 32.2 \text{ ft/sec}^2$
 $h = 837.90 - 837.65 = 0.25 \text{ ft}$
 $a = \frac{1.43}{0.62 \times \sqrt{2} \times 32.2 \times 0.25} = 0.575 \text{ ft}^2 = 82.77 \text{ in}^2 = \text{Total outlet}$

WQ POND (FOREBAY) OUTLET CALCULATION FOR SIZING OUTLET PIPE TO DETENTION POND
 $t = 24 \text{ hr.} \times \frac{60 \text{ min.}}{\text{hr.}} \times \frac{60 \text{ sec.}}{\text{min.}} = 86,400 \text{ sec.}$
 $Q_0 = \frac{v}{t} = \frac{12,661}{86,400 \text{ sec.}} = 0.15 \text{ CFS}$
 $Q_0 = 0.62 \times a \times \sqrt{2} \times g \times h = 1.85 \text{ CFS}$
 $g = 32.2 \text{ ft/sec}^2$
 $h = 836.50 - 835.0 = 1.50 \text{ ft}$
 $a = \frac{0.18}{0.62 \times \sqrt{2} \times 32.2 \times 1.50} = 0.03 \text{ ft}^2 = 4.32 \text{ in}^2 = \text{Total outlet}$

WQ POND (CHANNEL PROTECTION) OUTLET CALCULATION FOR SIZING OUTLET PIPE TO LIVERNOIS RD. DITCH
 $t = 24 \text{ hr.} \times \frac{60 \text{ min.}}{\text{hr.}} \times \frac{60 \text{ sec.}}{\text{min.}} = 86,400 \text{ sec.}$
 $Q_0 = \frac{v}{t} = \frac{36,445}{86,400 \text{ sec.}} = 0.42 \text{ CFS}$
 $Q_0 = 0.62 \times a \times \sqrt{2} \times g \times h = 1.85 \text{ CFS}$
 $g = 32.2 \text{ ft/sec}^2$
 $h = 837.65 - 835.0 = 2.65 \text{ ft}$
 $a = \frac{0.42}{0.62 \times \sqrt{2} \times 32.2 \times 2.65} = 0.05 \text{ ft}^2 = 7.47 \text{ in}^2 = \text{Total outlet}$

Use 1.5" diameter holes in bulkhead outlet. Area of hole = 1.77 in²
 82.77 in² / 1.77 in² = 46.84 ~ (46) - 1.5" holes are required.

Use 2" diameter PVC outlet pipe. Area of pipe diameter = 3.14 in²
 4.32 in² / 3.14 in² = 1.38 ~ (1) - 2" inch PVC discharge pipe is required.

Use 1" diameter holes. Area of holes diameter = 0.785 in²
 7.47 in² / 0.785 in² = 9.51 ~ (9) - 1" holes are required.

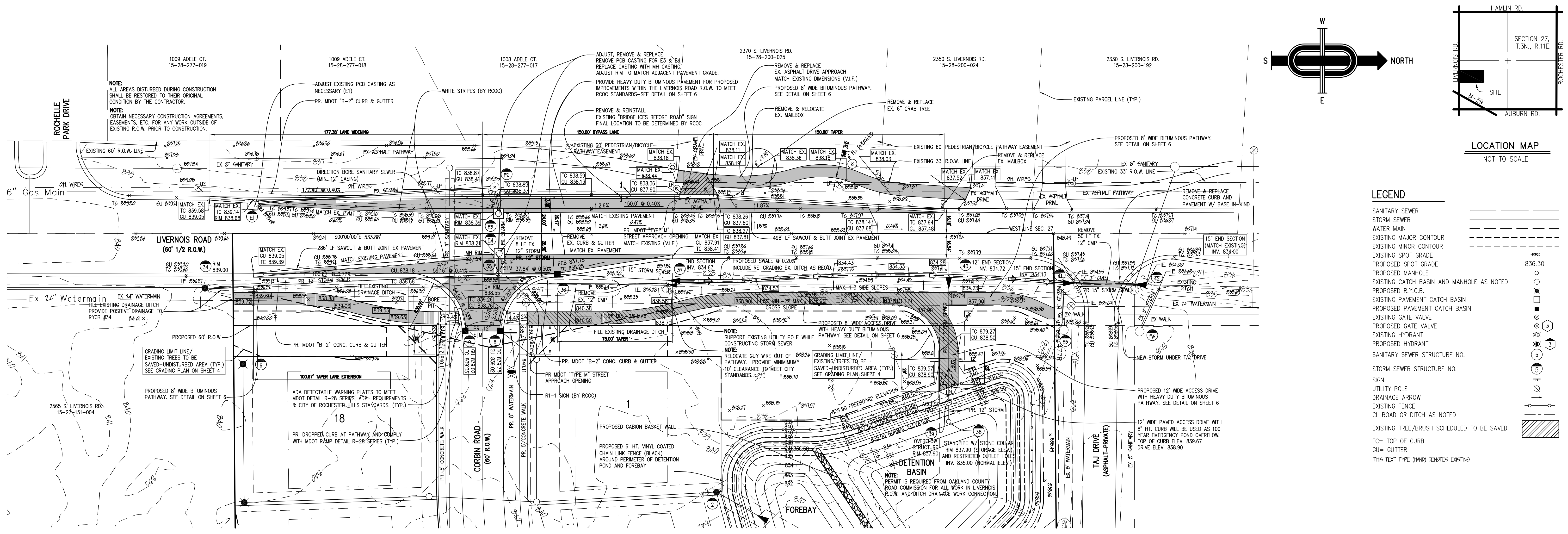
INFILTRATION AREA REQUIRED

POST DEVELOPMENT WATER QUALITY
 1-YEAR FLOOD VOLUME REQUIRED:
 $W_0 = 1,815 \times A \times C$
 $W_0 = 1,815 \times (9.257) \times (0.58)$
 $W_0 = 9,745 \text{ CF}$
 EXISTING UNDISTURBED & EXISTING TREE AREA:
 SOUTH LIVERNOIS RD.: 1,998 SF
 NORTH LIVERNOIS RD. & DETENTION BASIN: 10,565 SF
 SOUTH OF LOTS 12, 14-17: 21,530 SF
 NORTH OF LOTS 4-8: 43,327 SF
 EAST OF LOT 8: 3,794 SF
 EAST OF LOT 9-11: 4,448 SF
 TOTAL AREA: 85,662 SF
 INFILTRATION OF 1" (.08") USED IN CALCULATION.
 $85,662 \text{ SF} \times .08 = 6,853 \text{ CF}$
 PROPOSED DRYWELL:
 INSTALL 6A DRAINAGE STONE WRAPPED IN GEOTEXTILE FILTER FABRIC IN REAR YARD OF EACH LOT. EACH LOT ROOF DOWNSPOUTS WILL BE CONNECTED TO DRYWELL.
 6A DRAINAGE STONE STORAGE VOLUME = 40%
 TOTAL NUMBER OF LOTS: 18
 PROPOSED DIMENSIONS OF DRYWELL FOR LOT: 7' WIDE X 12' LONG X 5' DEEP
 $168 \text{ CF} \times 18 \text{ LOTS} = 3,024 \text{ CF}$
 $6,853 \text{ CF} + 3,024 \text{ CF} = 9,877 \text{ CF}$

NOTE: PROVIDE TRASH RACK TO PROTECT ALL ORIFICES SMALLER THAN 4 INCHES IN DIAMETER AS DIRECTED BY THE CITY OF ROCHESTER HILLS.

SANITARY SEWER BASIS OF DESIGN

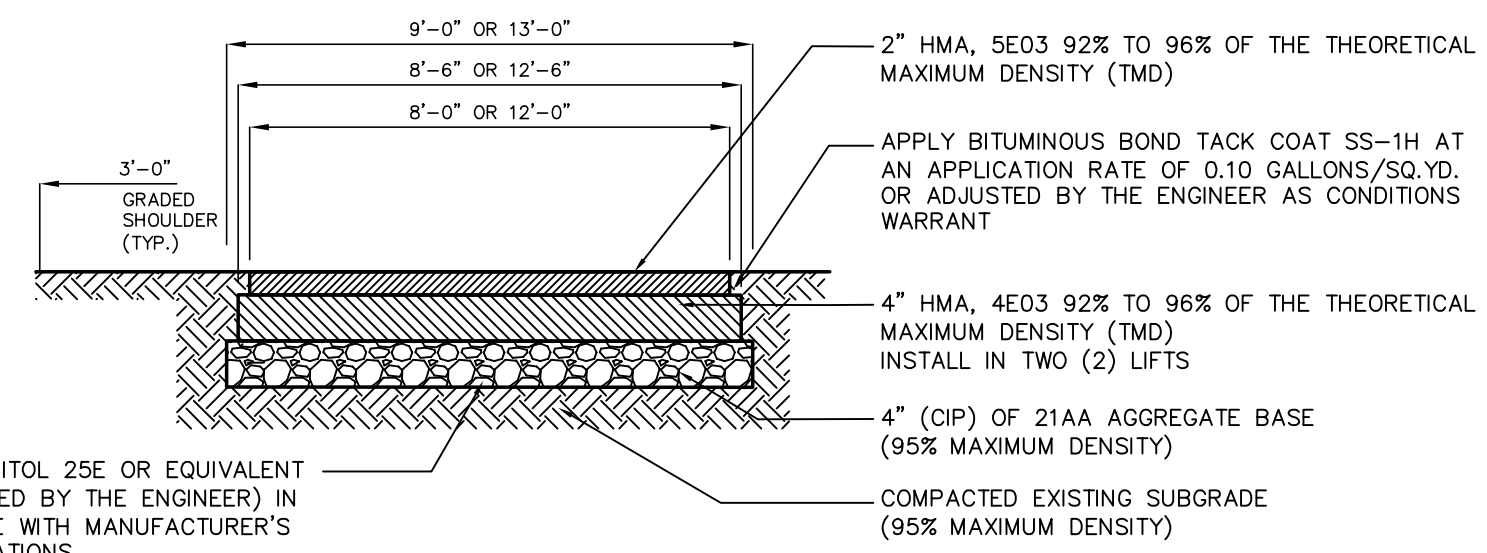
INITIAL DISCHARGE



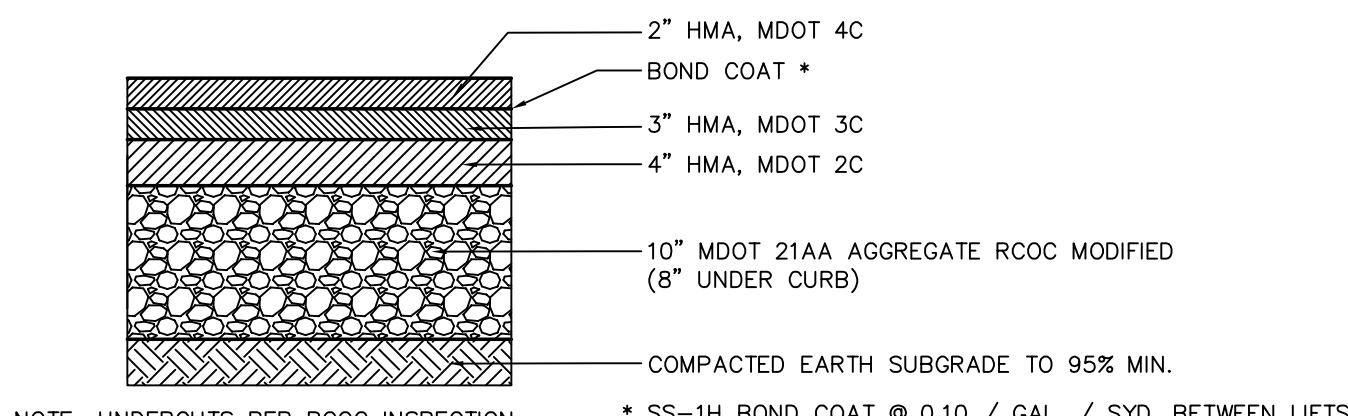
R.O.W. IMPROVEMENTS PLAN – LIVERNOIS ROAD
SCALE: 1"=30'

LEGEND

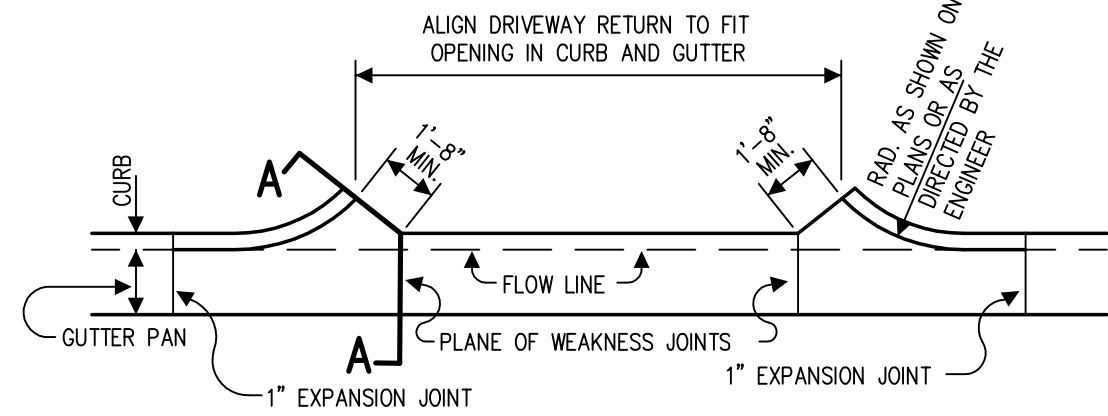
Sanitary Sewer	---
Storm Sewer	---
Water Main	---
Existing Major Contour	---
Existing Minor Contour	---
Existing Spot Grade	---
Proposed Spot Grade	836.30
Proposed Manhole	○
Existing Catch Basin and Manhole as Noted	○
Proposed R.Y.C.B.	□
Existing Pavement Catch Basin	□
Proposed Pavement Catch Basin	□
Existing Gate Valve	○
Proposed Gate Valve	○
Existing Hydrant	○
Proposed Hydrant	○
Sanitary Sewer Structure No.	5
Storm Sewer Structure No.	5
Sign	○
Utility Pole	○
Drainage Arrow	→
Existing Fence	---
CL Road or Ditch as Noted	---
Existing Tree/Brush Scheduled to be Saved	○
TC = TOP OF CURB	
GU = GUTTER	
THIS TEXT TYPE (HND) DENOTES EXISTING	



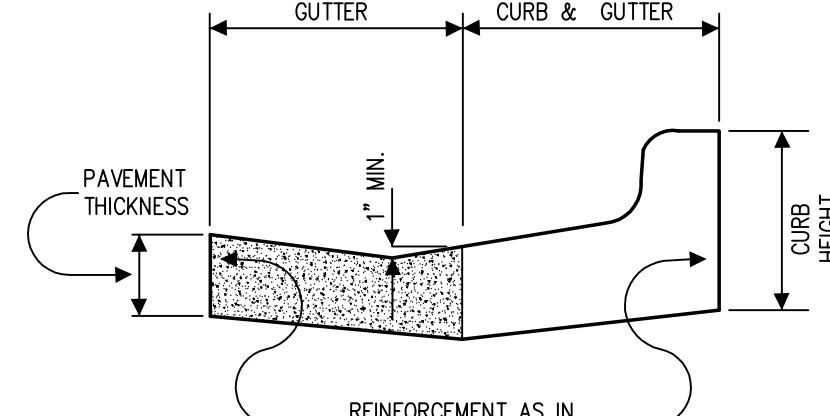
8' OR 12' WIDE HEAVY DUTY BITUMINOUS PATHWAY DETAIL
NOT TO SCALE



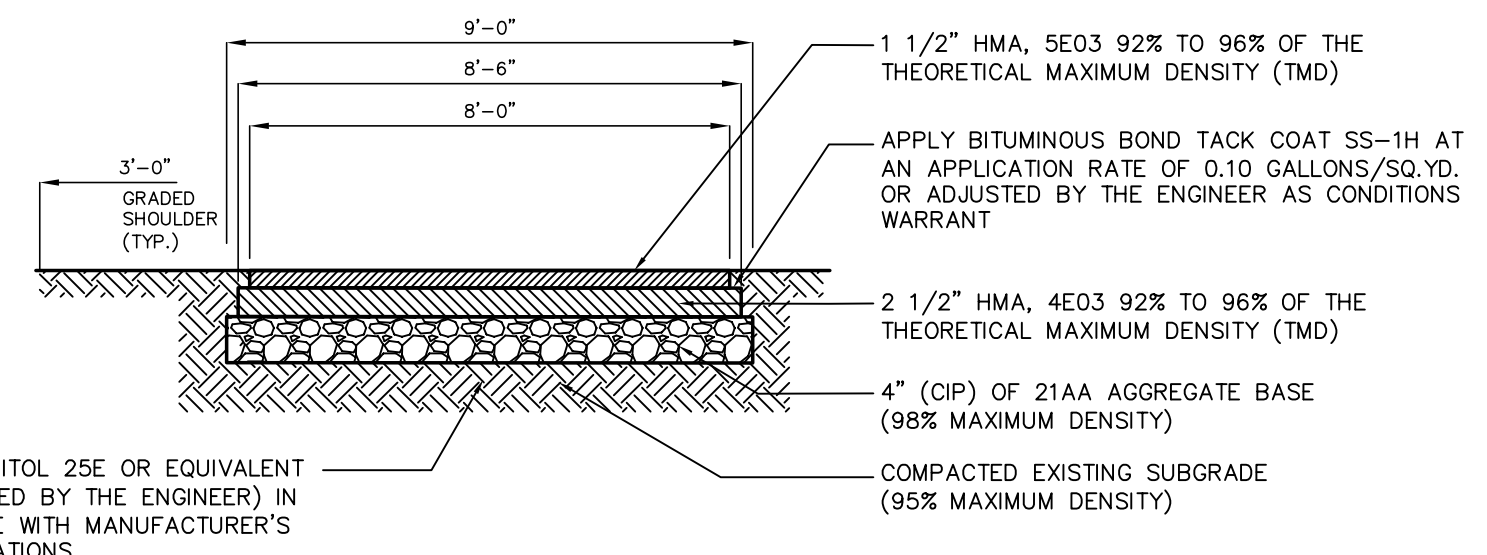
HEAVY DUTY BITUMINOUS PAVEMENT (LIVERNOIS RD. R.O.W.)
(R.O.C. STANDARD DETAIL)
NOT TO SCALE



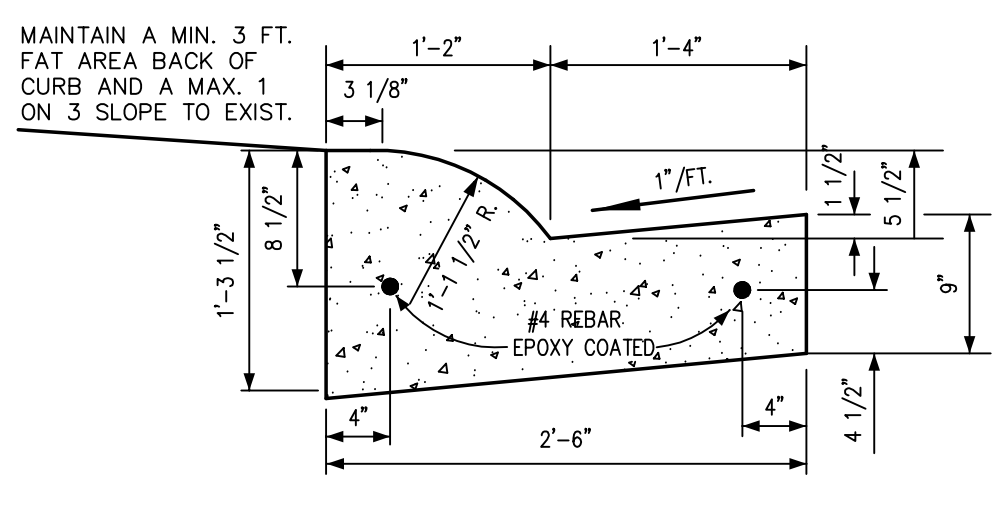
CONCRETE DRIVEWAY OPENING – DETAIL M
NOT TO SCALE



SECTION A-A



8' WIDE BITUMINOUS PATHWAY DETAIL
NOT TO SCALE



M.D.O.T. B-2 CURB & GUTTER DETAIL
NOT TO SCALE

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

REV. 4/21/15 FINAL SITE PLAN
REV. 7/8/14 PER CITY REVIEW COMMENTS
REV. 5/27/14 PER CITY REVIEW COMMENTS
REV. 2/28/14 FORMAL SUBMITTAL TO CITY.

COMMUNITY CIVIL ENGINEERING & SURVEYING

Call Engineering and Surveying
6303 26 Mile Road, Suite 110
Washington Twp., Michigan 48094
Telephone (586) 877-4081
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"=30'**
DRAWN BY **J.M.B.** SHEET **6 OF 9**
CHECKED BY **R.S.H.** DRAWING **Z-13-037**

ROW IMPROVEMENTS

CITY FILE #14-001

CITY TREE PROTECTION NOTES

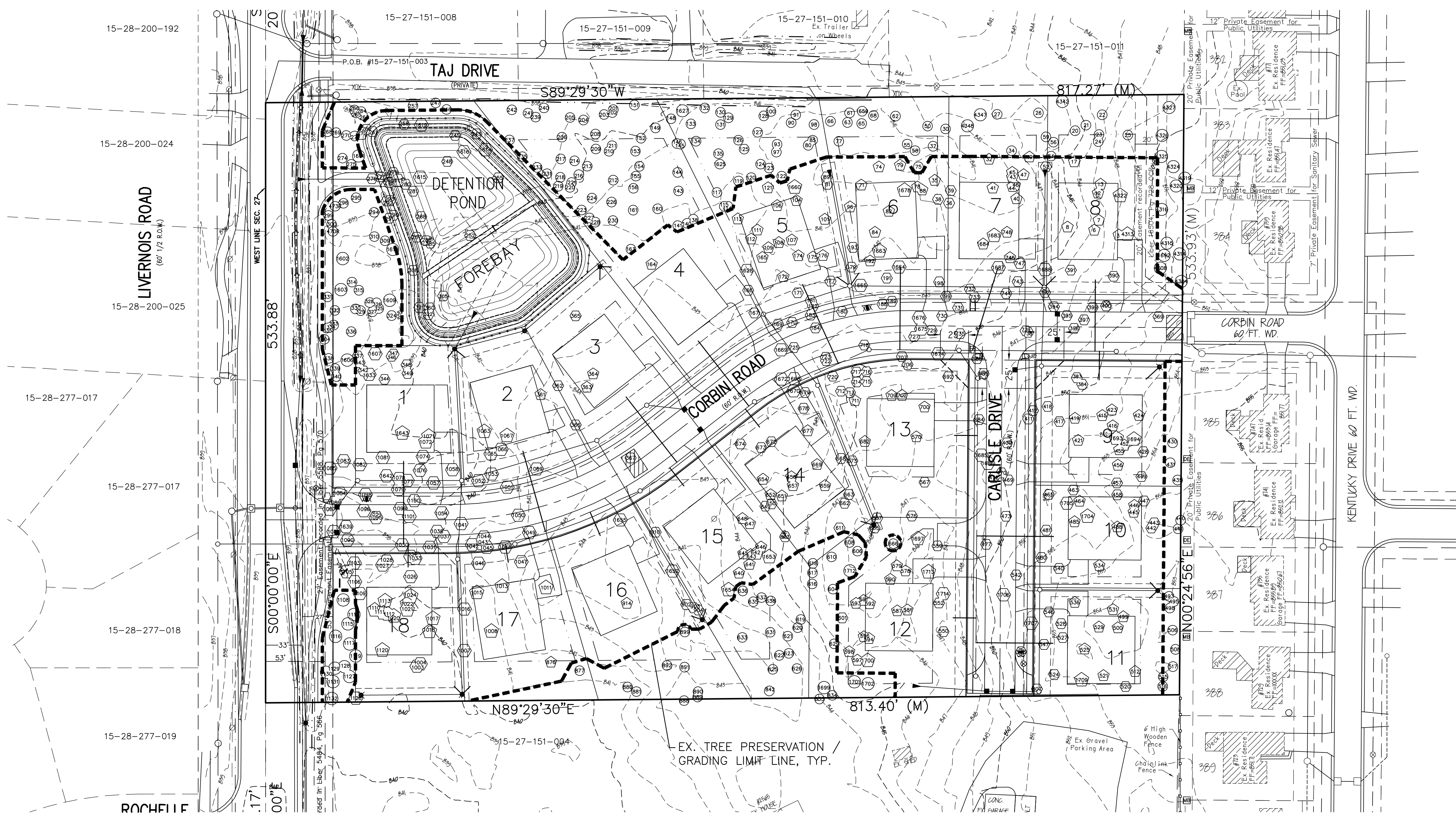
IMPORTANT: ALL TREES ON ADJACENT PROPERTIES MUST BE PROTECTED. THE TREE PROTECTIVE FENCING MAY BE PLACED ALONG THE ACTUAL PROPERTY LINE IF THE BRANCHES OF THE TREES ON THE ADJACENT PROPERTIES DO NOT OVERHANG ONTO THE SITE BEING DEVELOPED. IF THE BRANCHES OVERHANG ONTO THE AREA OF THE SITE BEING DEVELOPED, THE TREE PROTECTIVE FENCING MUST BE PLACED AT THE ACTUAL DRIP LINE OF THESE TREES. IT SHOULD ALSO BE NOTED THAT THE SILT FENCING MUST BE PLACED ON THE DEVELOPMENT SIDE OF THE TREE PROTECTIVE FENCING. THE SILT FENCING MAY NOT BE PLACED BETWEEN THE TREE BEING PRESERVED AND THE TREE PROTECTIVE FENCING. IF ANY REGULATED TREES ARE MANAGED ON THE ADJACENT PROPERTIES, THE DAMAGED TREES WILL BE EITHER REPLACED ON THE OWNERS PROPERTY OR AN INCH FOR INCH BASIS OR A FINE IN 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 248-656-4660.

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 248-656-4660 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 248-656-4660 to schedule this TPF 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 this inspection is complete and all related issues are resolved. It is the developer's responsibility to contact the City Planning Department at 248-656-4660 to schedule this inspection.
- The Tree Conservation Ordinance prohibits any construction or development activities within the drip line of any regulated trees not approved by the City of Rochester Hills Forestry, 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. No 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/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 T-bar 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 to the release of the Performance Bond, the City of Rochester Hills Forestry Division needs to inspect all trees existing or planned, 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: 03/14/2024
 REVIEWER: JAZZMINA PER CITY REVIEW
 COMMENTS: 07/28/2024 PER CITY REVIEW
 CONDITIONS: 07/28/2024 PER PERSONAL
 CONDITIONS
 DRAWN BY: JAE
 DRAWING #: 1000

donald c. westphal
 associates, l.l.c.
 landscape architects & site planners
 2440 Westpark Drive, Suite C, Rochester Hills, MI 48316-4000
 (248) 861-0900



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)+(21x2) = 50 CREDITS

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

TREE REPLACEMENT PROGRAM

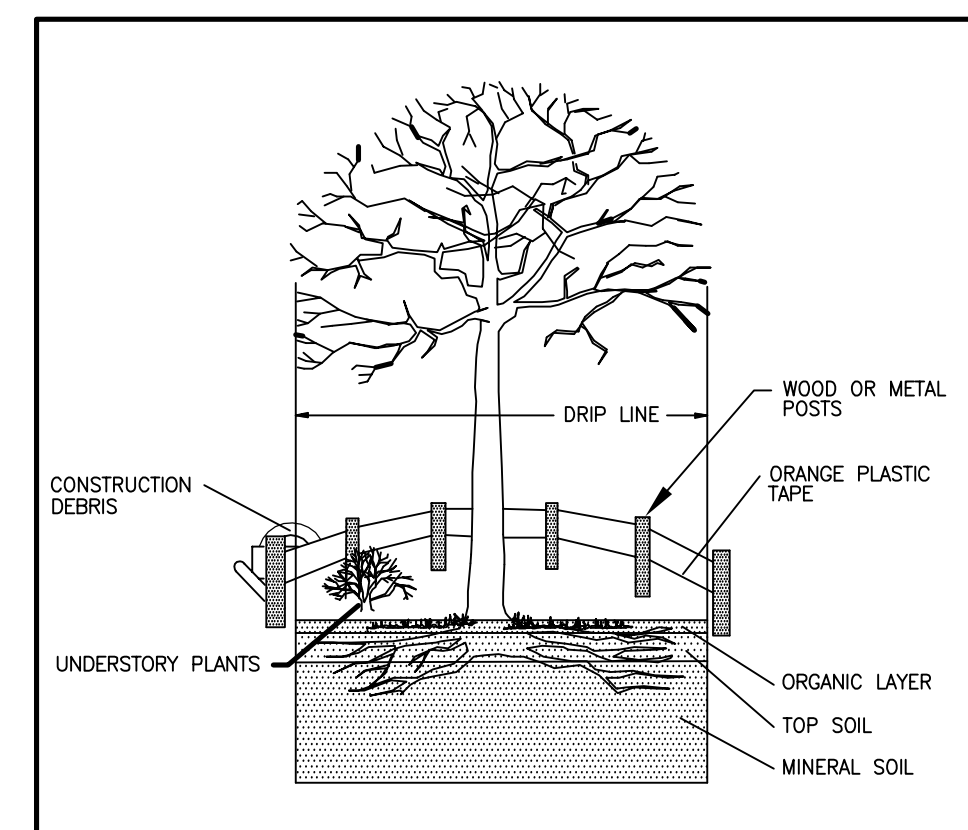
- NUMBER OF REPLACEMENT TREE CREDITS REQUIRED = 389. REPLACEMENT TREES WILL CONSIST OF 2" MINIMUM CALIPER DECIDUOUS TREES OR 8' MINIMUM HEIGHT EVERGREEN TREES.
- THE REPLACEMENT TREES SHALL CONFORM TO THE LATEST REVISION OF THE AMERICAN STANDARD FOR NURSERY STOCK ANSI 260.1-1989, AND MUST BE APPROVED 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 ENVELOPES. ALL CIRCLED TREES WILL BE PRESERVED.
- FOR TREE PROTECTION MEASURES, SEE "TREE PROTECTION NOTES".
- SEE THE ATTACHED "CUMBERLAND - 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.

ADDITIONAL TREE PROTECTION NOTES

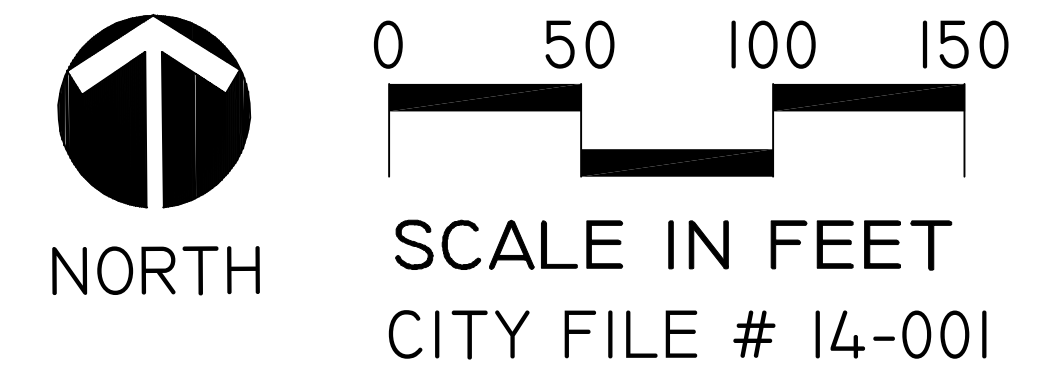
- BEFORE DEVELOPMENT, LAND CLEARING, FILLING OR ANY LAND ALTERATION FOR WHICH A TREE REMOVAL PERMIT IS REQUIRED, THE PERMIT HOLDER SHALL CLEARLY MARK BY PAINTING, FLAGGING, OR OTHER APPROVED METHOD ALL TREES TO BE REMOVED AND SHALL ERECT AND MAINTAIN SUITABLE BARRIERS TO PROTECT REMAINING TREES. PROTECTIVE 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 AT 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 PROTECTION BARRIER DETAIL

TREE REPLACEMENT CALCULATIONS

ON-SITE TREES	
TOTAL NUMBER OF REGULATED TREES (≥ 6"DBH).....	621
TOTAL NUMBER OF REGULATED TREES IN BUILDING ENVELOPES.....	142
TOTAL NUMBER OF REGULATED TREES IN PROPOSED GRADING AND UTILITIES AREAS.....	247
TOTAL NUMBER OF REGULATED TREES TO BE REMOVED (142+247).....	389
TOTAL NUMBER OF REGULATED TREES TO BE SAVED (621-389).....	232
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	389
**TOTAL NUMBER OF REPLACEMENT TREE CREDITS PROVIDED ON-SITE	184



TREE PRESERVATION PLAN AND DETAILS

Cumberland Pointe
 Rochester Hills, Oakland County, Michigan

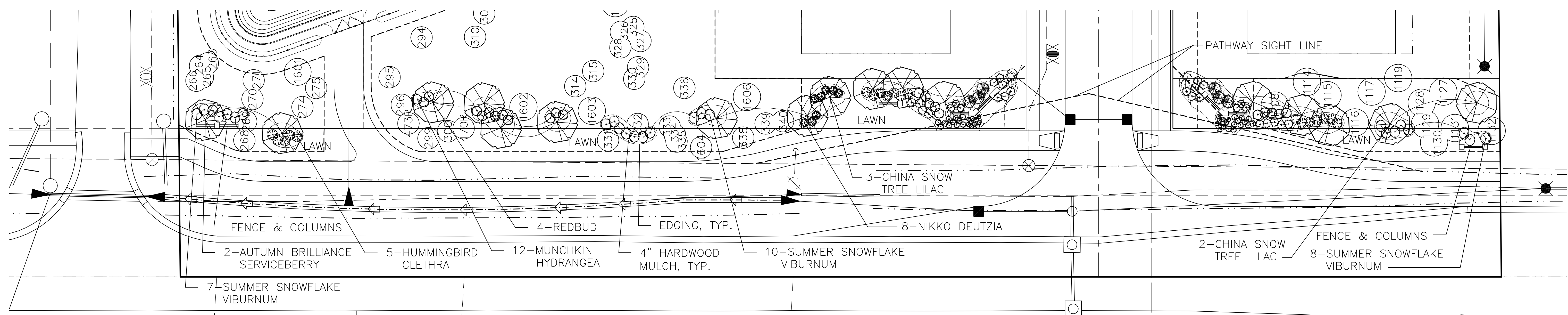
DATE: 02/14/2014
 REVISIONS: 05/27/2014 PER CITY REVIEW
 COMMENTS: 06/10/2014 PER REVIEW
 COMMENTS: 06/23/2014 PER APPROVAL
 CONDITIONS:
 DRAWN BY: JLB DRAWING # 1000

donald c. westphal
 associates, l.l.c.
 landscape architects & site planners
 10000 Lakeshore Blvd. #1000
 Rochester Hills, MI 48309
 (248) 851-2518

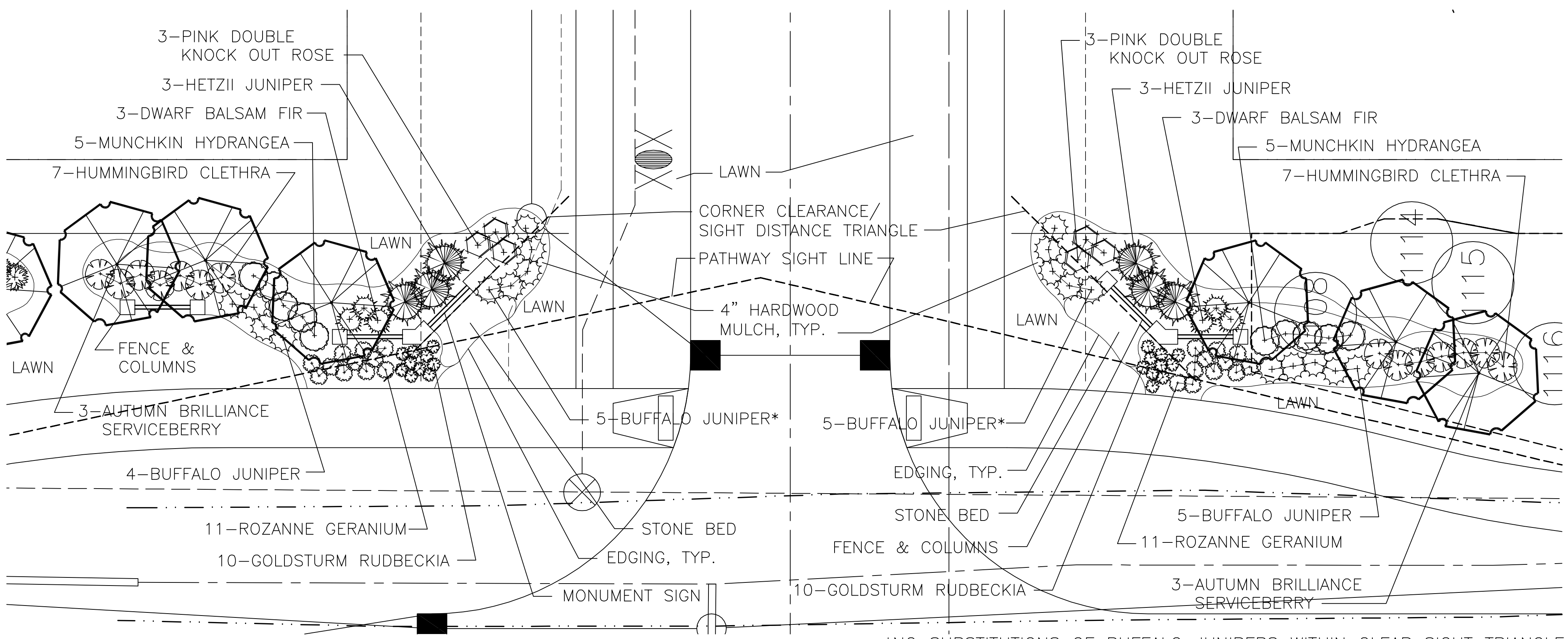


LANDSCAPE DETAILS

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	SIZE	SPACING	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:

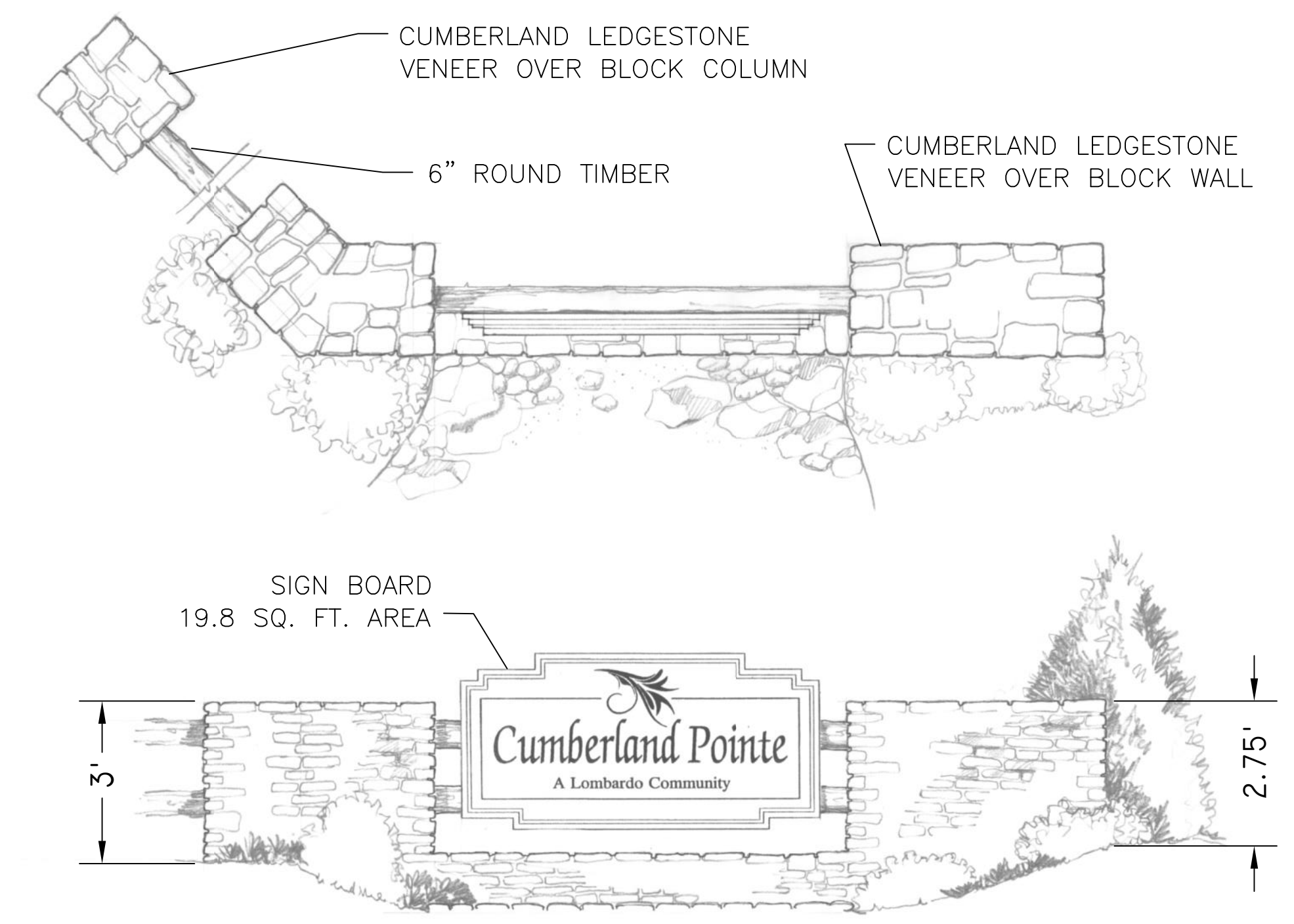
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING
19	BUFFALO JUNIPER	JUNIPERUS SABINA 'BUFFALO'	24" SPD. B.&B.	3' O.C.
6	DWARF BALSAM FIR	ABIES BALSAMEA 'NANA'	24" SPD. B.&B.	2.5' O.C.
19	HUMMINGBIRD CLETHRA	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	30" HT. B.&B.	3' O.C.
22	MUNCHKIN HYDRANGEA	HYDRANGEA QUERCIFOLIA 'MUNCHKIN'	30" HT. B.&B.	3' O.C.
8	NIKKO DEUTZIA	DEUTZIA GRACILIS 'NIKKO'	30" HT. B.&B.	3' O.C.
2	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:

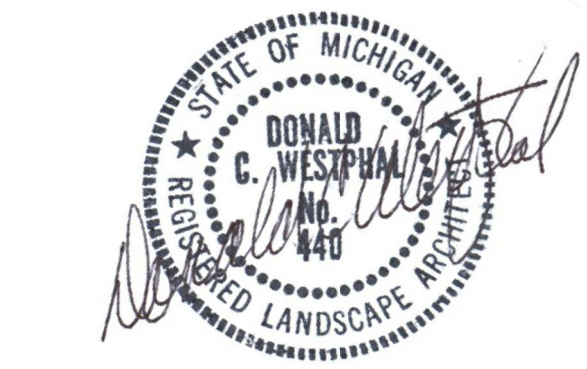
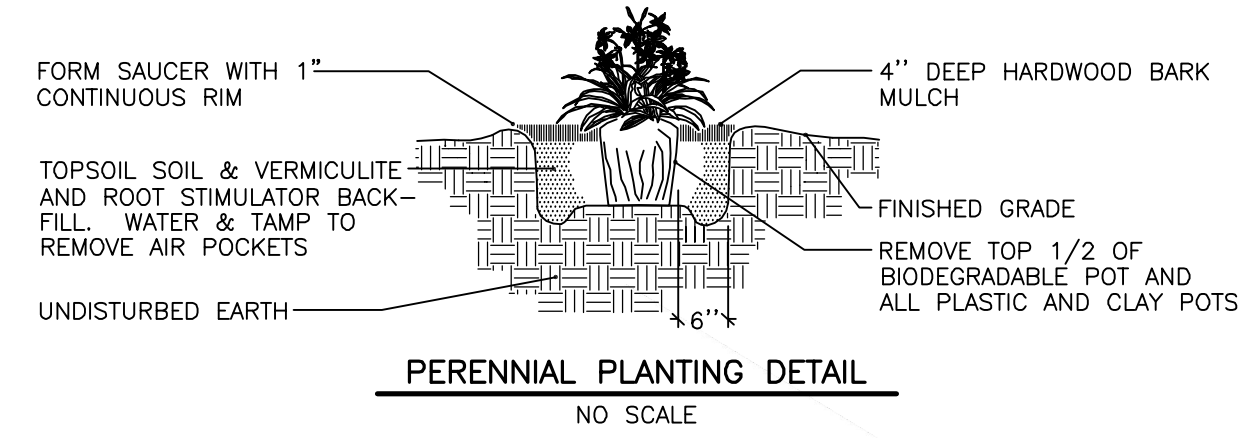
NO.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING
20	GOLDSTURM RUDBECKIA	RUDBECKIA FULDIGA 'GOLDSTURM'	1 GAL. CONT.	1.5' O.C.
22	ROZANNE GERANIUM	GERANIUM MACULATUM 'ROZANNE'	1 GAL. CONT.	2' O.C.

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



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