

SANITARY SEWER BASIS OF DESIGN

Table with columns: Sanitary Basis of Design, Unit, Units, Single Family Units, Population. It includes data for residential units, estimated flow from adjacent woods, and capacity of 24" pipe.

DOMESTIC WATER SERVICE DEMAND

ASSUMING THAT THE WATER DEMAND IS DIRECTLY RELATED TO THE SANITARY SEWER DEMAND:
PDF = 0.047 CFS = 0.047 CFS x 646,317 = 30,377 GAL/DAY

NOTES:

- 1) ALL CONSTRUCTION SHALL BE CONFORMING TO THE CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY CITY OF ROCHESTER HILLS.
2) FRANCHISE UTILITIES TO BE UNDERGROUND.
3) STORM WATER MANAGEMENT WILL BE PROVIDED ACCORDING TO CITY OF ROCHESTER HILLS AND O.C.D.C. STANDARDS AND WILL OUTLET INTO EXISTING SARAGENT CREEK.
4) SANITARY SEWER SERVICE WILL BE PROVIDED VIA A CONNECTION TO EXISTING 8" SANITARY SEWER IN THE ROCHEDALE DRIVE RIGHT-OF-WAY.
5) WATER SERVICE WILL BE PROVIDED VIA A CONNECTION TO EXISTING 12" WATER MAIN IN THE ROCHEDALE DRIVE RIGHT-OF-WAY.
6) A 20 FOOT WIDE EASEMENT IS REQUIRED FOR ALL PROPOSED WATER MAIN.
7) PUBLIC SANITARY SEWER WILL HAVE A DEDICATED 20' WIDE EASEMENT.
8) TRASH COLLECTION TO BE CURBSIDE.
9) OUTDOOR LIGHTING TO BE PROVIDED VIA TWO COACH LAMPS MOUNTED ON EACH GARAGE FRONT.
10) AN ENTRY SIGN WILL BE PROPOSED AT EACH ENTRANCE PER THE CITY OF ROCHESTER HILLS STANDARDS.
11) ALL UNITS TO BE SERVICED WITH A 6" DIA. SUMP LEAD.
12) MAINTENANCE OF ALL COMMON AREAS INCLUDING PARKS, ROADS, SIDEWALKS, LIGHTING, AND LANDSCAPING WILL BE THE RESPONSIBILITY OF THE HOME OWNERS ASSOCIATION.
13) THE SITE PLAN IS SUBJECT TO FINAL ENGINEERING REVIEW.
14) A SIDEWALK WAIVER IS REQUESTED FOR APPROVAL BY THE CITY OF ROCHESTER HILLS.
15) ALL SIDEWALK, RAMPS, LANDINGS, AND BRIDGE RAILING MUST MEET THE AMERICAN WITH DISABILITIES ACT (ADA) REQUIREMENTS.

OFFICE BUILDING PARKING CALCULATOR: THE PROPOSED ENTRANCE DRIVE IS TO BE SHARED WITH THE DRIVEWAY ENTRANCE FOR THE OFFICE BUILDING LOCATED AT 1460 WALTON BOULEVARD. THE ENTRANCE IMPROVEMENTS WILL REQUIRE THE RE-ORIENTATION OF SEVERAL OF THE PARKING SPACES WITHIN THE EXISTING OFFICE BUILDING DEVELOPMENT.
OFFICE BUILDING AREA= 60604 SF

REQUIRED PARKING: 1 SPACE PER 350 GROSS SQUARE FEET
= 60604 / 350 = 173 SPACES REQUIRED
EXISTING PARKING IN PLACE: 243 SPACES
EXISTING PARKING REMOVED: 93 SPACES
NEW PARKIN PROVIDED: 47 SPACES
TOTAL NEW OFFICE PARKING: 197 SPACES PROVIDED



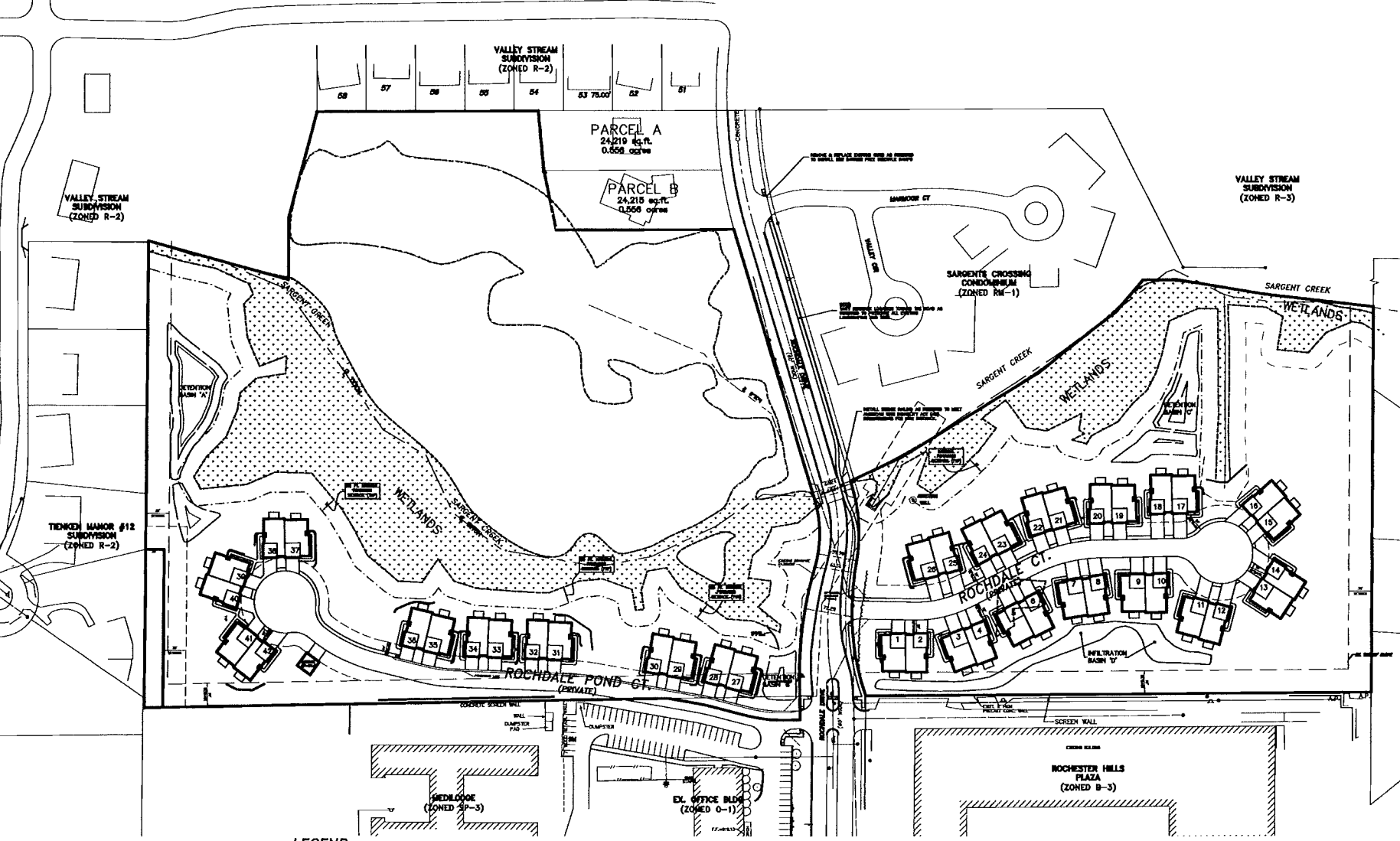
NOTE: THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR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

LEGAL DESCRIPTION - WEST SIDE

A PART OF THE SOUTHWEST 1/4 OF SECTION 9, T.34N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AND BEING DESCRIBED AS BEGGING AT A POINT BEING S80°07'11" E 672.63 FEET ALONG THE EAST LINE OF SAID SECTION 9, AND S89°04'31" W 115.40 FEET ALONG THE SOUTH LINE OF SAID SECTION 9, AND S80°30'37" W 650.00 FEET ALONG THE WEST LINE OF SAID SUBDIVISION AND INTERSECTION OF VALLEY STREAM SUBDIVISION, AS RECORDED IN LINDER 194, PAGE 24, 22, & 23 OF PLATS, OAKLAND COUNTY RECORDS, AND BEING 10.48 ACRES, MORE OR LESS. COURSES BEING ALSO THE EASTERN AND SOUTHERLY LINE OF "VALLEY STREAM SUBDIVISION" AS RECORDED IN LINDER 194, PAGES 24, 22, & 23 OF PLATS, OAKLAND COUNTY RECORDS, AND BEING 10.48 ACRES, MORE OR LESS. COURSE BEING ALSO THE EASTERN AND SOUTHERLY LINE OF "VALLEY STREAM SUBDIVISION" AS RECORDED IN LINDER 194, PAGE 24, 22, & 23 OF PLATS, OAKLAND COUNTY RECORDS, AND BEING 10.48 ACRES, MORE OR LESS. COURSE BEING ALSO THE EASTERN AND SOUTHERLY LINE OF "VALLEY STREAM SUBDIVISION" AS RECORDED IN LINDER 194, PAGE 24, 22, & 23 OF PLATS, OAKLAND COUNTY RECORDS, AND BEING 10.48 ACRES, MORE OR LESS.

LEGAL DESCRIPTION OF PROPERTY - EAST SIDE

A PART OF THE SOUTHWEST 1/4 OF SECTION 9, T.34N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AND BEING DESCRIBED AS BEGGING AT A POINT BEING S80°07'11" E 672.63 FEET ALONG THE EAST LINE OF SAID SECTION 9, AND S89°04'31" W 115.40 FEET ALONG THE SOUTH LINE OF SAID SECTION 9, AND S80°30'37" W 650.00 FEET ALONG THE WEST LINE OF SAID SUBDIVISION FROM THE EAST N CORNER OF SECTION 9, THENCE S00°30'37" W 582.00 FEET, THENCE S89°54'14" W 724.25 FEET (REC. S89°30'17" W 724.24 FEET) TO A POINT ON THE EAST LINE OF NORTH ROCHEDALE DRIVE 60 FT. WIDE AND POINT OF CURVATURE, THENCE ALONG A CURVE TO THE RIGHT AN ARC LENGTH OF 121.68 FEET (REC. 121.67 FEET), A RADIUS OF 398.84 FEET (REC. 398.70 FEET), A CHORD OF N09°50'58" W 121.12 FEET (REC. N09°51'02" W 121.11 FEET), THENCE ALONG A CURVE TO THE RIGHT AN ARC LENGTH OF 85.44 FEET, A RADIUS OF 473.10 FEET, A CHORD OF N04°40'38" E 85.32 FEET, THENCE ALONG A CURVE TO THE LEFT AN ARC LENGTH OF 111.00 FEET, A RADIUS OF 240.00 FEET, A CHORD OF N63°10'00" W 110.00 FEET, THENCE N16°00'00" W 10.83 FEET, THENCE N07°14'44" E 84.22 FEET, THENCE N09°30'00" E 244.00 FEET, THENCE N51°00'00" E 54.00 FEET, THENCE N52°00'00" E 84.00 FEET, THENCE N07°30'00" E 63.00 FEET, THENCE N09°30'00" E 50.00 FEET, THENCE S09°30'00" E 137.00 FEET, THENCE S09°20'00" E 105.00 FEET TO THE POINT OF BEGINNING, HAVING AN AREA OF 9.38 ACRES.



LEGEND table listing symbols for existing storm, water, gas, catch basins, manholes, end sections, set iron, guy wire, tree lines, iron, mailboxes, power poles, and signs.

PROPOSED LEGEND table listing symbols for storm sewer, water main, sanitary sewer, manholes, catch basins, end sections, gate valves, hydrants, finish grade, drop brick ledge, walk out, drainage arrows, spot elevations, and contours.

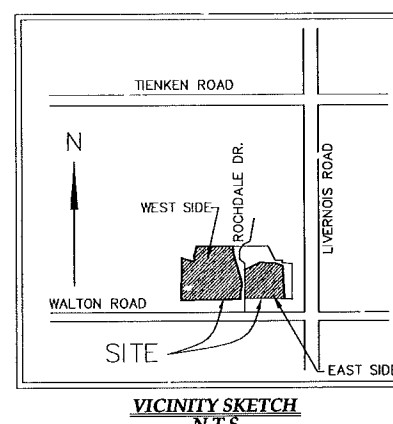
ACCESS & EASEMENT NOTE EASEMENTS FOR CROSS ACCESS AND UTILITIES ARE REQUIRED BETWEEN THE DEVELOPMENT AREA WESTERLY OF ROCHEDALE DRIVE AND THE NEIGHBORING OFFICE BUILDING. ALL APPLICABLE EASEMENTS TO BE REVIEWED AND APPROVED BY THE CITY ATTORNEY AND RECORDED WITH THE OAKLAND COUNTY REGISTER OF DEEDS PRIOR TO THE CITY'S ISSUANCE OF A LAND IMPROVEMENT FOR THE DEVELOPMENT OF THE AREA WEST OF ROCHEDALE DRIVE.

NOTE THE FOLLOWING PIPE MATERIALS ARE REQUIRED:
-SANITARY SEWER: RCP C76 CLASS IV WITH RUBBER GASKET JOINTS UNDER PAVEMENT
-ROOF AND SUMP LEADS: SCHEDULE 40 PVC OR SDR 23.5
-SANITARY SEWER LEADS: SOLID WALLED ABS, SDR 23.5
-WATER MAIN: CEMENT-LINED DUCTILE IRON CLASS 54
-WATER SERVICE LEADS: TYPE K SOFT COPPER OR 200 PSI SDR-9 POLY PIPE

NOTES 1. TOPOGRAPHIC SURVEY PROVIDED BY OTHERS.
2. SEE SHEET 2 FOR LEGAL DESCRIPTION.
3. REFER TO SITE PLAN FOR SITE DATA.
4. SIGNAGE WILL BE IN CONFORMANCE WITH CITY OF ROCHESTER HILLS REQUIREMENTS. A SEPARATE SIGN PERMIT MUST BE OBTAINED FROM THE BUILDING DEPARTMENT.

PRELIMINARY SITE PLAN for ANDOVER WOODS CONDOMINIUMS CITY OF ROCHESTER HILLS OAKLAND COUNTY, MICHIGAN

SITE DATA: CURRENT ZONING= RCD ONE FAMILY RESIDENTIAL CLUSTER
SITE AREA DATA: SITE AREA WEST SIDE= 17.29 ACRES (753,152 SF) EAST SIDE= 9.38 ACRES (408,593 SF)
USES: WEST SIDE= EXISTING UN-DEVELOPED EAST SIDE= UN-DEVELOPED PROPOSED RESIDENTIAL DUPLEX UNITS RESIDENTIAL DUPLEX UNITS
SETBACKS: REQUIRED: PROVIDED: FRONT - 25' 18' BET. BLDGS- 20' 20' REAR - 35' 35'
PARKING CALCULATIONS: PARKING REQUIRED= 42 UNITS @ 2 SPACES PER UNIT = 126 BEDROOMS @ 1/4 OF A SPACE PER BEDROOM = 116 SPACES
TOTAL PARKING REQUIRED= 116 SPACES
PARKING PROVIDED= 42 GARAGES @ 2 SPACES PER GARAGE = 42 DRIVEWAYS @ 2 SPACES PER DRIVEWAY
TOTAL PARKING PROVIDED= 168 SPACES



PETITIONER/APPLICANT: ANDOVER WOODS, LLC. AGENT: BRUCE MICHAEL 2617 BEACON HILL DRIVE AUBURN HILLS, MI 48328 PHONE: (248) 703-4653 FAX: (248) 373-1230
SITE CIVIL: GREENTECH ENGINEERING, INC. FNA: ANC ENGINEERING INC. 5111 WEST PONTIAC TRAIL WXOM, MI 48393 PHONE (248) 668-0700 FAX (248) 668-0701
LANDSCAPE ARCHITECT: ALLEN DESIGN S57 CARPENTER NORTHVILLE, MICHIGAN 48167 PHONE (248) 467-4688 FAX (248) 349-0559
WETLANDS CONSULTANT: BROOKS WILLIAMSON ASSOCIATES 30366 BECK ROAD WXOM, MICHIGAN 48393 PHONE (248) 624-9100

NOTE: DETENTION BASIN'S EMERGENCY OVERFLOW ROUTE DESIGN WILL BE PROVIDED ON CONSTRUCTION PLANS. DESIGN WILL ENSURE THE SITE DOES NOT CAUSE FLOODING ON THE ADJACENT PROPERTIES.

SHEET INDEX table listing 25 sheets including preliminary site plan, existing conditions, layout, grading, utility, woodland, and wetland delineation plans.

GREENTECH ENGINEERING, INC. CIVIL ENGINEERS & LAND SURVEYORS. 5111 W. Pontiac Trail, Wixom, MI 48393 Phone: (248) 668-0700 Fax: (248) 668-0701
PRELIMINARY SITE PLAN
ANDOVER WOODS, LLC.
ANDOVER WOODS CONDOMINIUMS
SECTION 9
TOWNSHIP: 3N
CITY OF ROCHESTER HILLS
OAKLAND COUNTY
MICHIGAN
RANGE: 1E

LEGAL DESCRIPTION - WEST SIDE

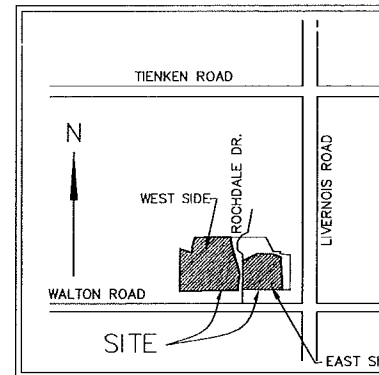
A PART OF THE SOUTHEAST 1/4 OF SECTION 9, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AND BEING DESCRIBED AS BEGINNING AT A POINT BEING 500'00"11"E 657.93 FEET ALONG THE EAST LINE OF SAID SECTION 9, AND N88°48'04"W 669.92 FEET ALONG THE NORTH LINE OF "HEARTPEACE HILLS NO. 2," AS RECORDED IN LIBER 129, PAGE 7 OF PLATS, OAKLAND COUNTY RECORDS, AND S00°30'37"W 650.00 FEET ALONG THE WEST LINE OF SAID SUBDIVISION AND N45°20'00"W 165.00 FEET AND N40°30'37"E 40.00 FEET AND N89°28'30"W 125.00 FEET AND N26°35'00"W 288.48 FEET AND N89°49'20"W 565.94 FEET, THE PREVIOUS COURSES BEING ALSO THE EASTERLY AND SOUTHERLY LINE OF "VALLEY STREAM SUBDIVISION," AS RECORDED IN LIBER 164, PAGES 21, 22, & 23 OF PLATS, OAKLAND COUNTY RECORDS, AND S08°33'59"E 181.93 FEET FROM THE EAST 1/4 CORNER OF SECTION 9, THENCE EXTENDING ALONG THE WESTERLY LINE OF ROCHDALE DRIVE (40 FEET WIDE) AS RECORDED IN SAID "VALLEY STREAM SUBDIVISION" (1) ALONG A CURVE TO THE LEFT 12.94 FEET (REC. 13.36 FEET), SAID CURVE HAVING A RADIUS OF 395.16 FEET (REC. 755.00 FEET), AND A LONG CHORD S16°11'37"E 12.84 FEET (REC. S15°59'35"E 13.36 FEET) AND (2) S18°30'00"E 412.45 FEET, AND (3) ALONG A CURVE TO THE RIGHT 102.73 FEET (REC. 103.39 FEET), SAID CURVE HAVING A RADIUS OF 181.17 FEET (180.00 FEET), AND A LONG CHORD S00°12'08"E 101.35 FEET (REC. S00°02'41"E 101.97 FEET) AND (4) ALONG A CURVE TO THE LEFT 165.05 FEET (REC. 164.38 FEET), SAID CURVE HAVING A RADIUS OF 560.70 FEET (REC. 564.97 FEET), AND A LONG CHORD S08°05'55"W 164.45 FEET (REC. S08°01'58"W 164.80 FEET) AND (5) S00°40'56"E 32.95 FEET (REC. S00°24'37"E 32.98 FEET), THENCE S89°35'21"W 25.30 FEET (REC. S89°39'17"W 25.11 FEET), THENCE S88°57'32"W 970.86 FEET TO THE EAST LINE OF "LOCHMOOR HILLS SUBDIVISION NO. 1," AS RECORDED IN LIBER 102, PAGE 18 OF PLATS, OAKLAND COUNTY RECORDS AND "TIENKEN MANOR NO. 12" AS RECORDED IN LIBER 123, PAGE 30 OF PLATS, OAKLAND COUNTY RECORDS SAID LINE BEING ALSO THE NORTH-SOUTH 1/4 LINE OF SAID SECTION, THENCE N00°34'45"E 705.34 FEET ALONG SAID LINE TO THE SOUTHERLY LINE OF SAID "VALLEY STREAM SUBDIVISION," THENCE THE FOLLOWING FOUR COURSES ALONG SAID LINE (1) S74°42'10"E 220.86 FEET, AND (2) N00°34'44"E 95.00 FEET, AND (3) N15°00'00"E 164.30 FEET, AND (4) N89°46'20"E 336.97 FEET, THENCE S05°24'12"E 90.46 FEET (REC. S05°07'14"E 90.33 FEET), THENCE S11°46'30"E 91.77 FEET (REC. S12°02'31"E 91.95 FEET), THENCE N89°46'20"E 269.74 FEET TO THE POINT OF BEGINNING AND CONTAINING 17.29 ACRES OF LAND, RESERVING EASEMENTS OF RECORD.

LEGAL DESCRIPTION OF PROPERTY - EAST SIDE

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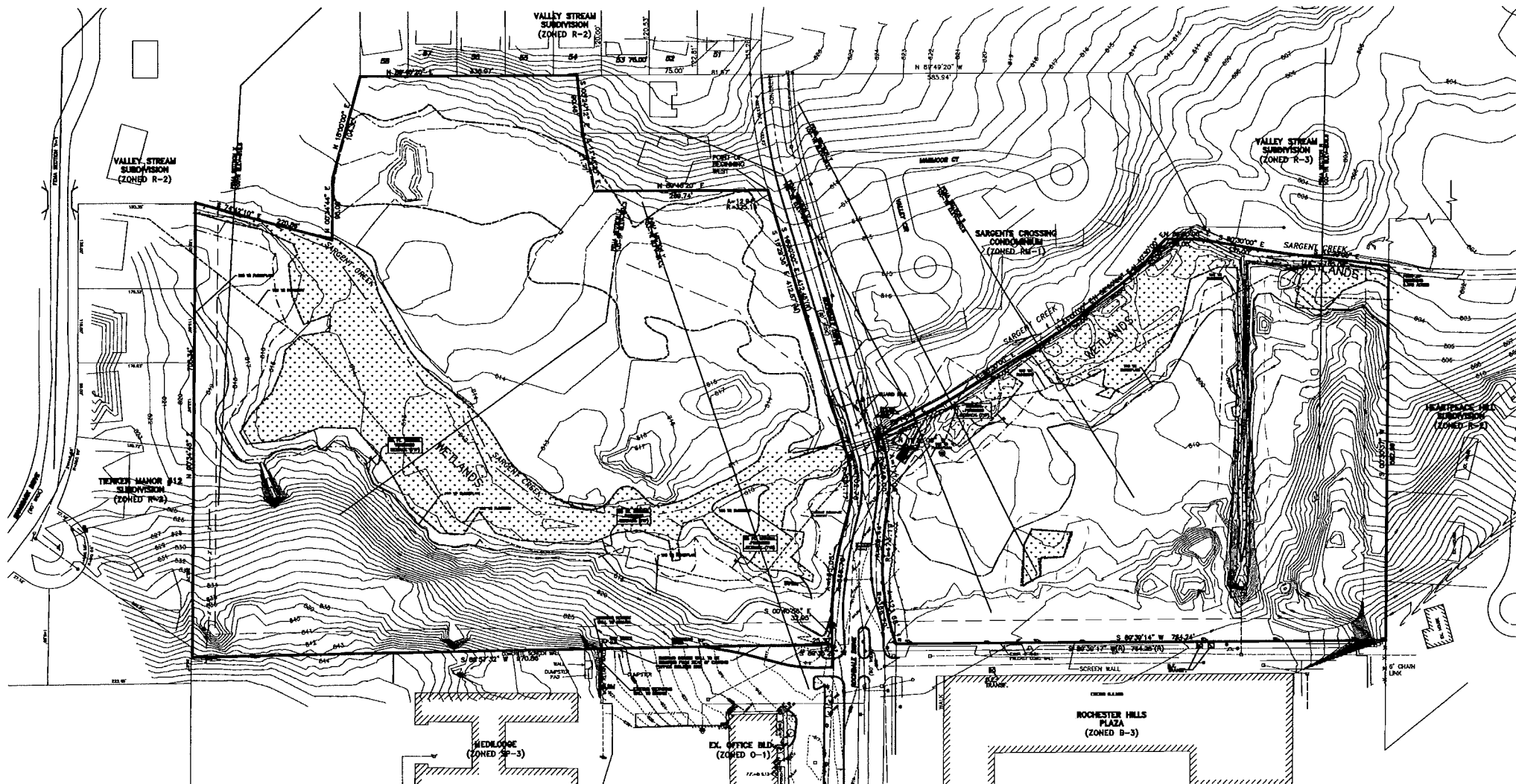
BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHDALE IN THE CENTER LINE OF ROCHDALE DRIVE, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #83697 240 FEET EAST OF ROCHDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK. ELEV. = 820.10 N.A.V.D. 88 DATUM

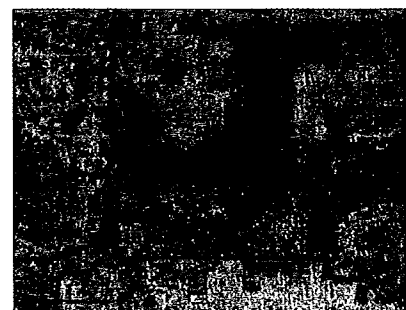


VICINITY SKETCH N.T.S.

WOODLAND NOTE:
THE WETLAND BOUNDARIES SHOWN ALONG THE NORTH SIDE OF THE SARGENT CREEK ARE FOR INFORMATIONAL PURPOSES AND HAVE NOT BEEN CONFIRMED BY THE CITY ROCHESTER HILLS WETLAND CONSULTANT.



SOIL SURVEY, OAKLAND COUNTY, MICHIGAN
 188. FINE SANDY LOAM - UPLAND
 204. THICKSAND FINE SAND - UPLAND
 49. COCKATON FINE SANDY LOAM
 26. SLAWM SILT LOAM - WETLAND
 41B. AGLENTS SANDY LOAM - WETLAND
 48. OLFORD SANDY LOAM - WETLAND



SOIL SURVEY MAP N.T.S.

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- △ EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. WALBOX
- EX. POWER POLE
- EX. SIGN

WOODLAND NOTE:
SEE SHEETS 11-14 FOR TREE INVENTORY



NOTE:
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 Phone: (248) 868-0700 Fax: (248) 868-0701

811
 Know what's below
 Call before you dig.

CLIENT: ANDOVER WOODS, LLC.
EXISTING CONDITIONS PLAN-OVERALL
 ANDOVER WOODS CONDOMINIUMS RANGE: 11E
 SECTION: 9 TOWNSHIP: 3N HILLS
 CITY OF OAKLAND COUNTY MICHIGAN

REVISED
9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
5-20-14 PER CITY REVIEW
12-16-13 PER CITY REVIEW
8-19-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW
DATE: 1-08-13
DRAWN BY: DJL
CHECKED BY: DJL
SCALE: HORIZ 1"=100 FT. VERT 1"=10 FT.
12-120

CITY FILE #98-025, SECTION 9

NOT TO BE USED AS CONSTRUCTION DRAWINGS

BENCHMARKS:

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- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63897 240 FEET EAST OF ROCHDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK. ELEV. = 820.10 N.A.V.D. 88 DATUM

WOODLAND NOTE:
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VALLEY STREAM SUBDIVISION (ZONED R-2)

TIENKEN MANOR #12 SUBDIVISION (ZONED R-2)

MEDILOGE (ZONED SP-3)

EX. OFFICE BLDG (ZONED O-1)

WOODLAND NOTE:
SEE SHEETS 11-14 FOR TREE INVENTORY

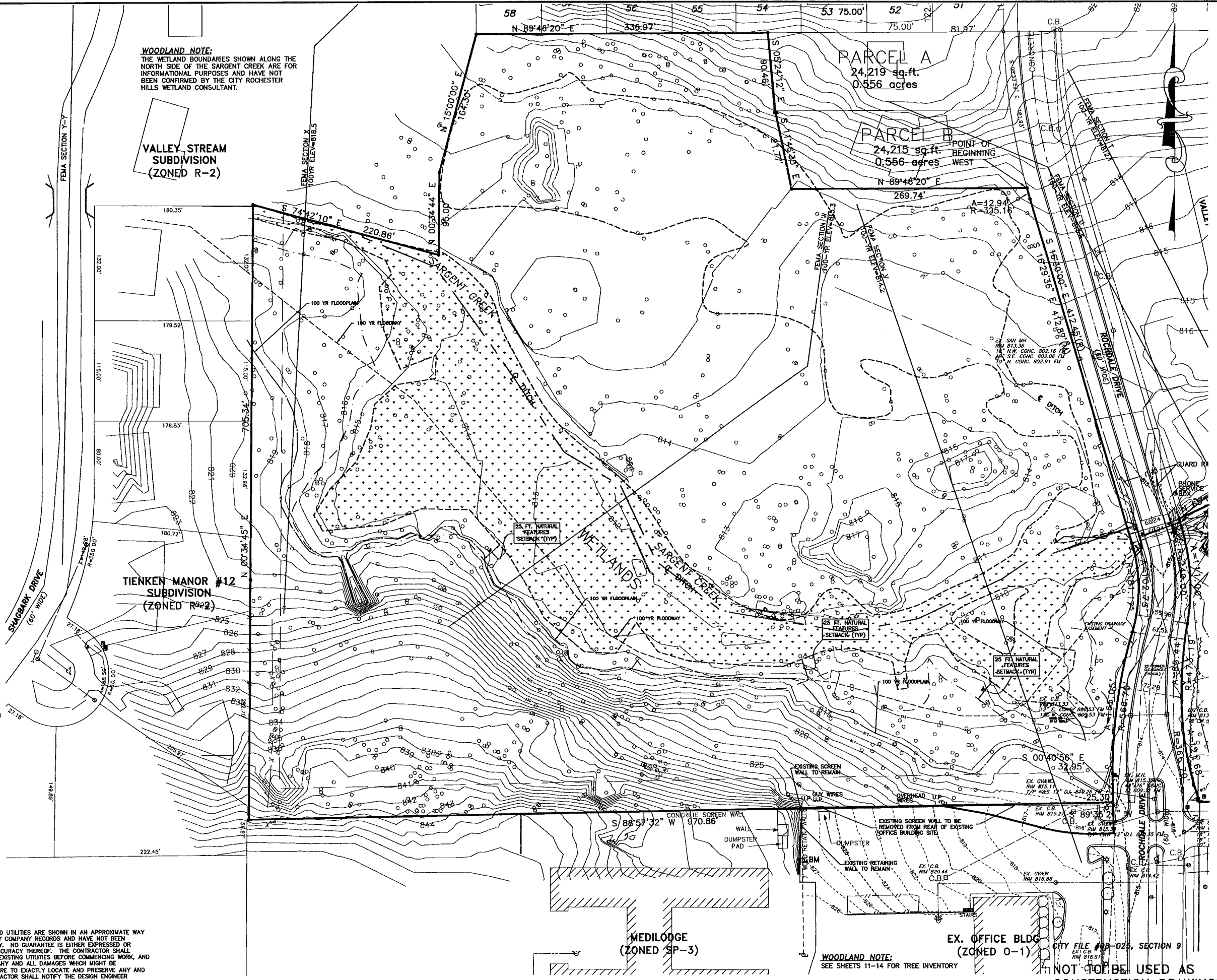
NOT TO BE USED AS CONSTRUCTION DRAWINGS

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN



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CIVIL ENGINEERS & LAND SURVEYORS
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Phone: (248) 686-0700 Fax: (248) 686-0701

Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.

EXISTING CONDITIONS PLAN - WEST

ANDOVER WOODS CONDOMINIUMS RANGE 11E
TOWNSHIP: 3N
CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

SECTION: 9

REVISED

9-30-14	PER CITY REVIEW
9-2-14	PER CITY REVIEW
5-20-14	PER CITY REVIEW
12-16-13	PER CITY REVIEW
8-19-13	UPDATE WETLANDS
6-24-13	PER CITY REVIEW

DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.

SCALE: HORIZ 1"=50 FT.
VERT 1"=10 FT.

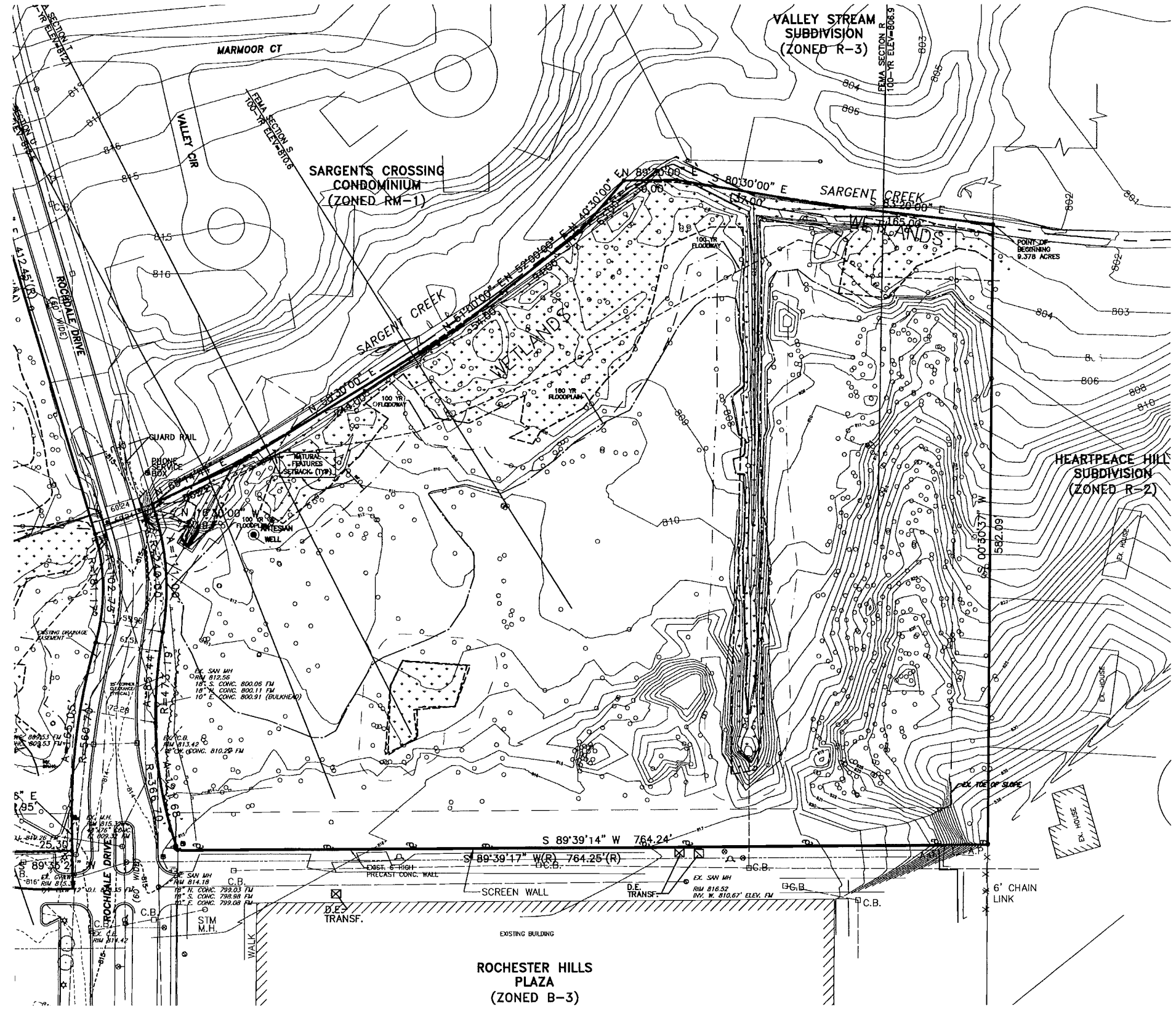
3

12-120

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LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
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- EX. SIGN



NOTE:
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WOODLAND NOTE:
SEE SHEETS 11-14 FOR TREE INVENTORY

CITY FILE #98-025, SECTION 9

NOT TO BE USED AS CONSTRUCTION DRAWINGS

RESIDENTIAL
SUBDIVISION
SURVEYING
MULTI-ENTRY
HOT PACE
COMMERCIAL
SITE PREPARATION
SITE GRADING
INSULATION SURVEYING
SURVEYING
A.T.A. SURVEYING
TOPOGRAPHIC SURVEYS
CONSTRUCTION STAKING

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
51111 W. Pontiac Trail, Wixom, MI 48393
Phone: (248) 668-0700 Fax: (248) 668-0701



811
Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.
EXISTING CONDITIONS PLAN-EAST

ANDOVER WOODS CONDOMINIUMS RANGE: 11E
SECTION: 9 CITY OF ROCHESTER HILLS
OKLAHOMA COUNTY MICHIGAN

REVISED

9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
5-20-14 PER CITY REVIEW
12-16-13 PER CITY REVIEW
8-19-13 UPDATE WETLANDS
6-24-13 PER CITY REVIEW

DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.

SCALE: HORIZ. 1"=50 FT.
VERT. 1"=12 FT.

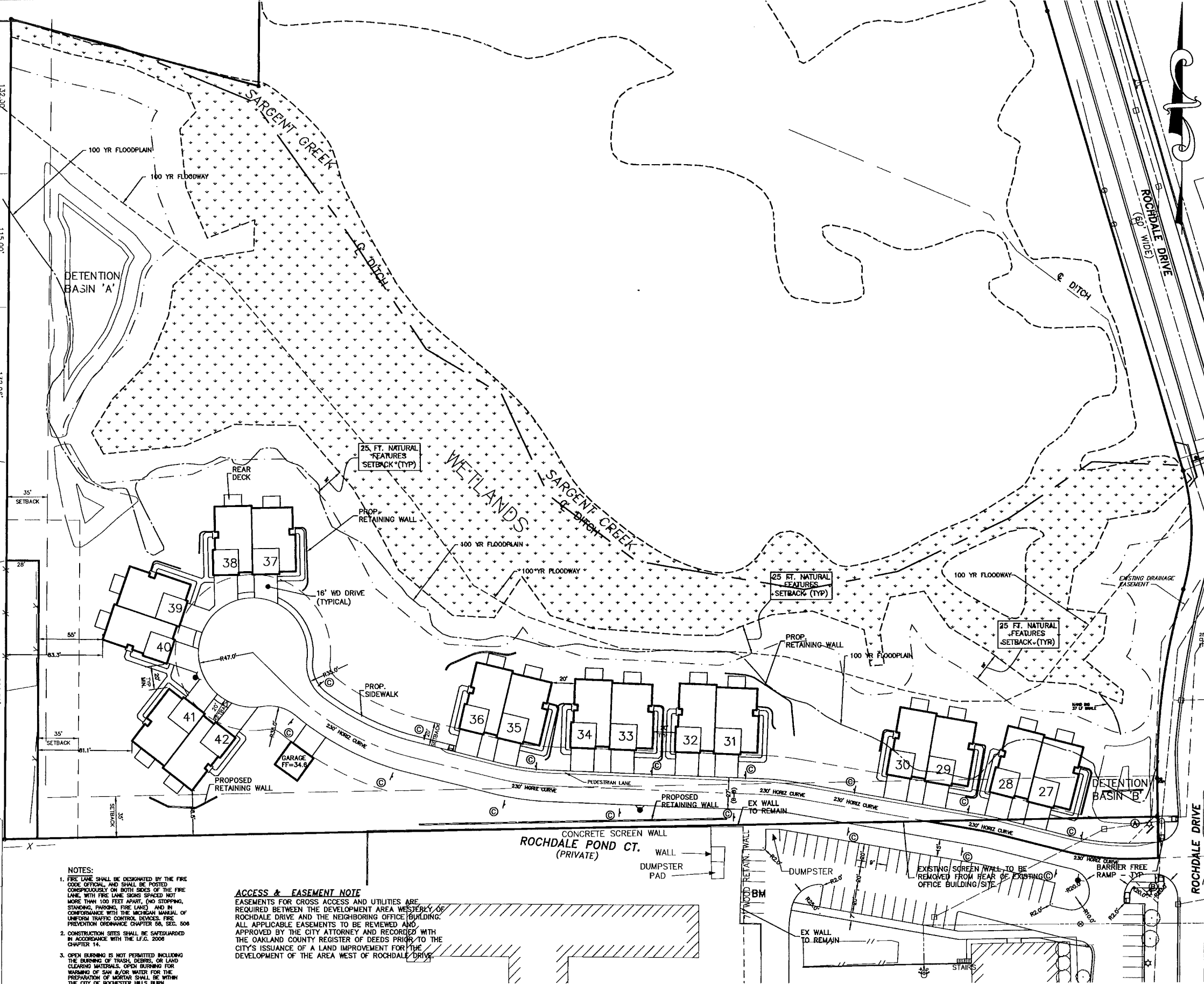
BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHESTER DRIVES, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHESTER DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63697 240 FEET EAST OF ROCHESTER, ON NORTH SIDE WALTON. BETWEEN B/C AND F/WALK. ELEV. = 820.10 N.A.V.D. 88 DATUM

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE 178.83'
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN
- PROP. STORM SEWER
- PROP. WATER MAIN
- PROP. SANITARY SEWER
- PROP. MANHOLE
- PROP. CATCH BASIN
- PROP. END SECTION
- PROP. GATE VALVE
- PROP. HYDRANT
- FINISH GRADE
- DROP BRICK LEDGE
- WALK OUT
- PROP. DRAINAGE ARROW
- PROP. SPOT ELEVATION
- PROP. CONTOUR

**TIENKEN MANOR #12
SUBDIVISION
(ZONED R-2)**



- NOTES:**
1. FIRE LANE SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL AND SHALL BE POSTED CONSPICUOUSLY ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART, (NO STOPPING, STANDING, PARKING, FIRE LANE) AND IN CONFORMANCE WITH THE MINIMUM MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, FIRE PREVENTION ORDINANCE CHAPTER 50, SEC. 508
 2. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH THE I.C. 2006 CHAPTER 14.
 3. OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAN &/OR WATER FOR THE PREPARATION OF MEALS SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES, FIRE PREVENTION ORDINANCE CHAPTER 50, SEC. 307.8.2 & 307.8.2.3
 4. GROUND MOUNTED TRANSFORMERS SHALL BE SCREENED WITH LANDSCAPING.
 5. ALL STREET NAMES WILL BE POSTED AFTER FIRE DEPARTMENT APPROVAL.
 6. PARKING SPACE CALCULATIONS ARE BASED ON 2 CARS ON DRIVEWAYS AND 2 CARS IN GARAGES. 4 SPACES/UNIT.

ACCESS & EASEMENT NOTE
EASEMENTS FOR CROSS ACCESS AND UTILITIES ARE REQUIRED BETWEEN THE DEVELOPMENT AREA WESTERLY OF ROCHESTER DRIVE AND THE NEIGHBORING OFFICE BUILDING. ALL APPLICABLE EASEMENTS TO BE REVIEWED AND APPROVED BY THE CITY ATTORNEY AND RECORDED WITH THE OAKLAND COUNTY REGISTER OF DEEDS PRIOR TO THE CITY'S ISSUANCE OF A LAND IMPROVEMENT FOR THE DEVELOPMENT OF THE AREA WEST OF ROCHESTER DRIVE.

WATER MAIN CONNECTION NOTE:
THE APPLICANT IS WORKING WITH THE NEIGHBORING PROPERTY OWNERS TO GAIN A WATER MAIN EASEMENT TO MAKE A WATER MAIN CONNECTION TO THE ADJACENT WATER INFRASTRUCTURE.

- PROPOSED SIGNAGE LEGEND:**
- A - ENTRY MONUMENT SIGN
 - B - "STOP" SIGN
 - C - "NO STOPPING STANDING PARKING - FIRE LANE" SIGN

NOTE:
- REAR DECKS TO BE WOOD FRAME ON POSTS AS REQUIRED TO ACCOMMODATE PROPOSED SLOPE TO EXISTING 25' NATURAL FEATURES SETBACK.
- ALL ROADWAY DIMENSIONS ARE TO BACK OF CURB.

BUILDING DATA:
BUILDING AREA 4514 SF (PER DUPLEX BUILDING)
CONSTRUCTION TYPE TYPE IIA
COMMUNITY STORAGE BUILDING AREA 576 SF

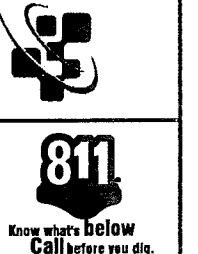
**CITY FILE #98-025, SECTION 9
NOT TO BE USED AS
CONSTRUCTION DRAWINGS**



NOTE:
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RESIDENTIAL
SITE DEVELOPMENT
Plot Plans
COMMERCIAL
Site Planning
Site Grading & Mapping
Ingrading & Mapping
SURVEYING
ALTA SURVEY
Topographic Surveys
Construction Staking

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
51111 W. Perlice Trail, Wixom, MI 48393
Phone: (248) 668-0700 Fax: (248) 668-0701



CLIENT: ANDOVER WOODS, LLC.
LAYOUT PLAN - WEST
ANDOVER WOODS CONDOMINIUMS RANGE: 11E
TOWNSHIP: 3N
CITY OF ROCHESTER HILLS
SECTION: 9
OAKLAND COUNTY MICHIGAN

REVISED	9-30-14 PER CITY REVIEW
	9-2-14 PER CITY REVIEW
	5-20-14 PER CITY REVIEW
	12-18-13 PER CITY REVIEW
	6-14-13 UPDATE WETLANDS
	6-24-13 PER CITY REVIEW
DATE: 1-08-13	
DRAWN BY: D.J.L.	
CHECKED BY: D.J.L.	
FRK:	
SCALE: HOR 1" = 40 FT. VER 1" = 10 FT.	5
	12-120

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHDALE DRIVE, IN BLVD. ISLAND, ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE, ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63697 240 FEET EAST OF ROCHDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK, ELEV. = 820.10 N.A.V.D. 88 DATUM

PROPOSED SIGNAGE LEGEND:

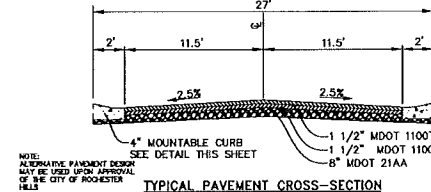
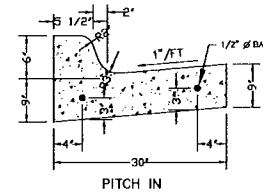
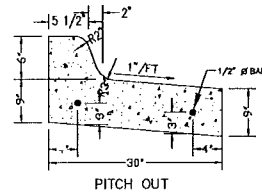
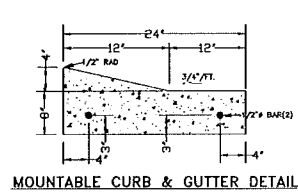
- A - ENTRY MONUMENT SIGN
- B - "STOP" SIGN
- C - "NO STOPPING STANDING PARKING - FIRE LANE" SIGN

BUILDING DATA:

BUILDING AREA 4514 SF (PER DUPLEX BUILDING)
CONSTRUCTION TYPE TYPE IIA

NOTE:

- REAR DECKS TO BE WOOD FRAME ON POSTS AS REQUIRED TO ACCOMMODATE PROPOSED SLOPE TO EXISTING 25' NATURAL FEATURES SETBACK.
- ALL ROADWAY DIMENSIONS ARE TO BACK OF CURB.



NOTE: ALTERNATIVE FINISHMENT DETAILS MAY BE USED UPON APPROVAL OF THE CITY OF ROCHESTER HILLS

LEGEND

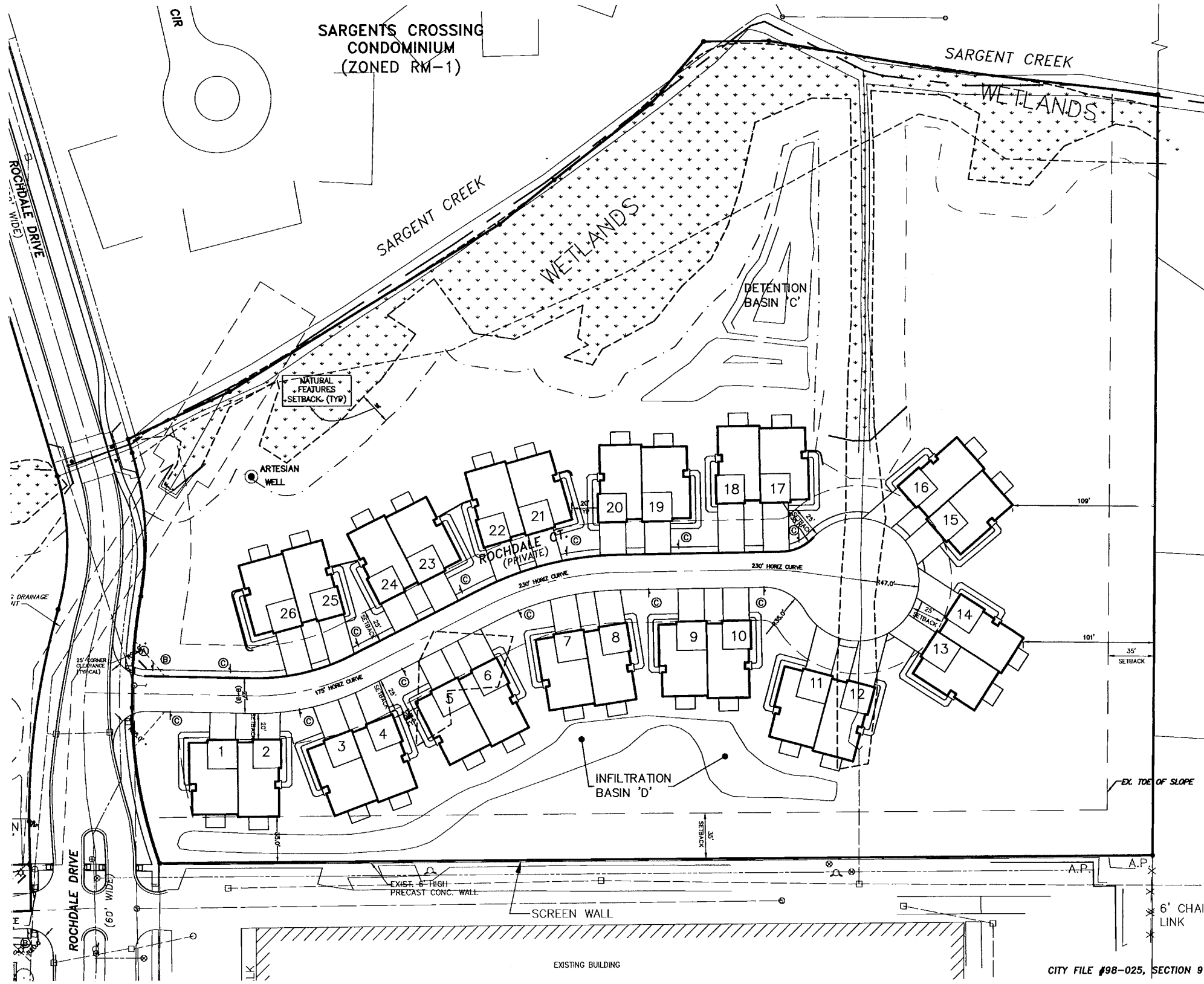
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
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- EX. TREE LINE
- FD. IRON
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN
- PROP. STORM SEWER
- PROP. WATER MAIN
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- PROP. END SECTION
- PROP. GATE VALVE
- PROP. HYDRANT
- FINISH GRADE
- DROP BRICK LEDGE
- WALK OUT
- PROP. DRAINAGE ARROW
- PROP. SPOT ELEVATION
- PROP. CONTOUR

NOTES:

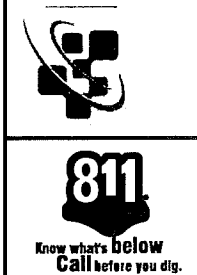
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CIVIL ENGINEERS & LAND SURVEYORS
51111 W. Pontiac Trail, Westland, MI 48393
Phone: (248) 688-0700 Fax: (248) 688-0701



CLIENT: ANDOVER WOODS, LLC.
LAYOUT PLAN-EAST
ANDOVER WOODS CONDOMINIUMS RANGE 11E
TOWNSHIP: 3N
CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN
SECTION: 9

REVISED
9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
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12-16-13 PER CITY REVIEW
8-14-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW
DATE: 1-08-13
DRAWN BY: D.J.
CHECKED BY: D.J.
6
12-120

CITY FILE #98-025, SECTION 9
NOT TO BE USED AS CONSTRUCTION DRAWINGS

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHDALE IN THE CENTER LINE OF ROCHDALE DRIVE, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
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LEGEND

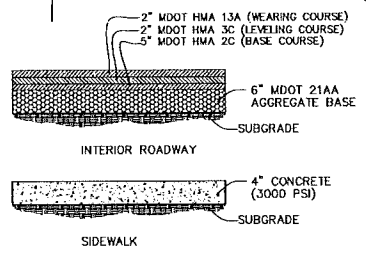
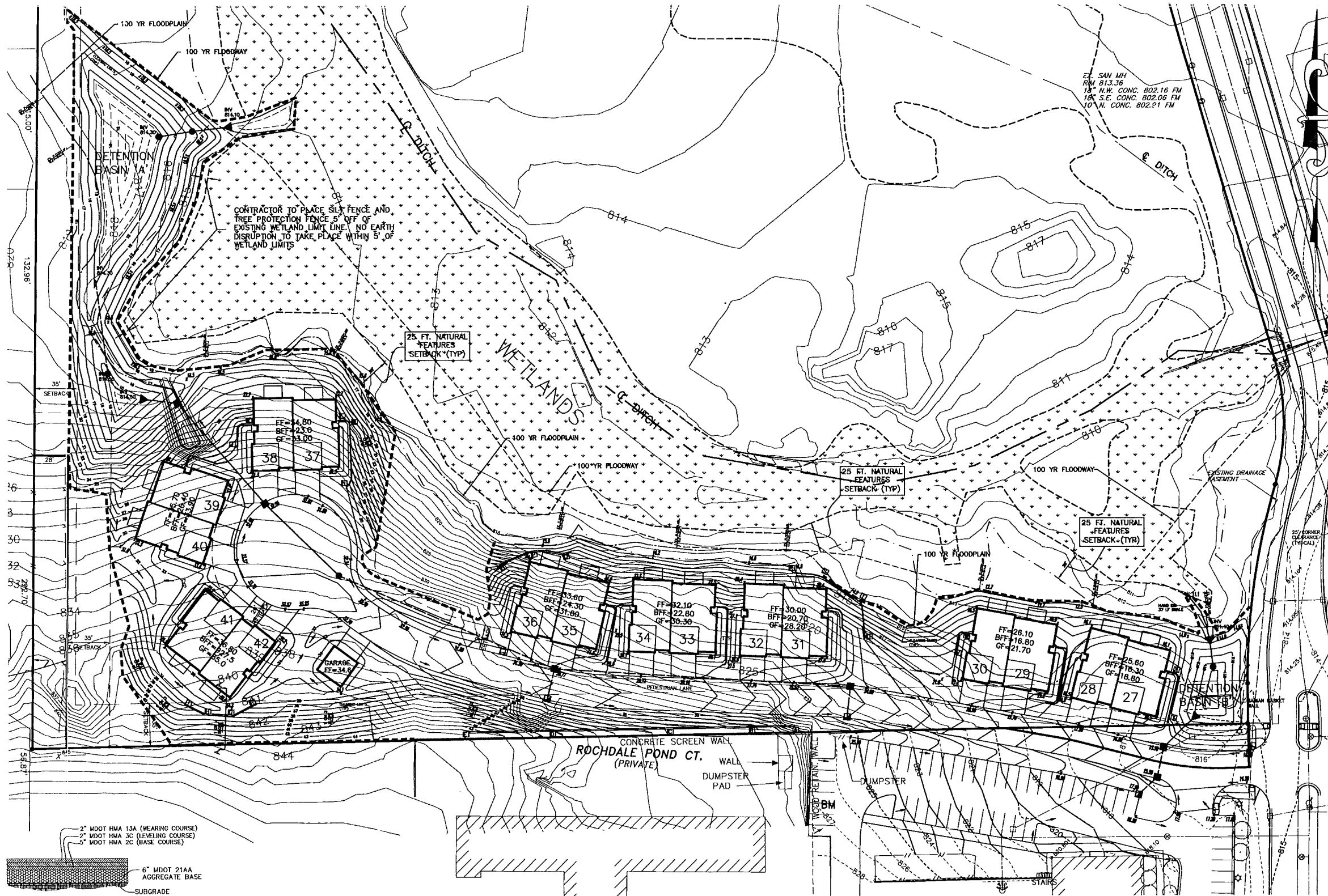
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- △ EX. END SECTION
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- PROP. HYDRANT
- FINISH GRADE
- DROP BRICK LEDGE
- WALK OUT
- PROP. DRAINAGE ARROW
- PROP. SPOT ELEVATION
- PROP. CONTOUR



RETAINING WALL ELEVATIONS		
LOCATION	T/WALL ELEV	B/WALL ELEV
A	830.0	829.0
B	835.0	831.0
C	838.0	834.0
D	841.0	837.0
E	844.5	844.0
F	836.0	835.0
G	838.0	835.0
H	835.0	835.0
I	836.0	835.0
J	831.0	829.0
K	831.0	829.0
L	831.0	825.0
M	831.0	823.5
N	831.0	830.0
O	828.0	825.0
P	822.0	817.5
Q	820.0	819.0
R	818.0	816.0
S	818.5	814.5
T	818.5	814.5
U	823.0	822.0
V	821.0	819.0
W	821.0	820.0
X	818.0	814.0
Y	818.0	814.0

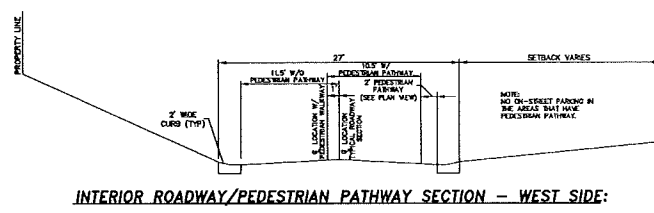
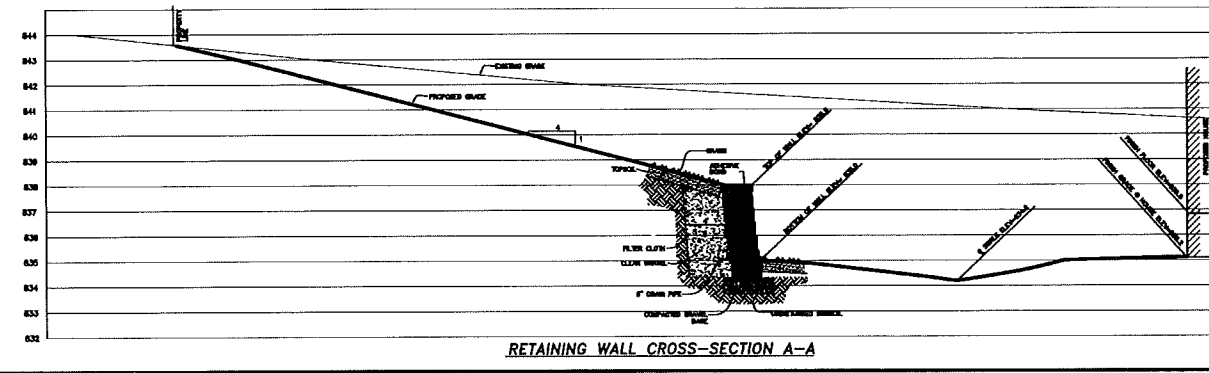
UNITS	BASEMENT FLOOR ELEVATION	FLOOD PLAIN ELEV
15-16	815.0	810.2
17-18	813.8	810.4
19-20	813.5	810.6
21-22	814.1	811.1
23-24	814.8	812.1
25-26	815.5	813.5
27-28	816.3	814.3
29-30	816.8	814.4
31-32	820.7	814.7
33-34	822.8	814.8
35-36	824.3	816.0
37-38	823.0	816.1
39-40	825.4	817.1
41-42	827.5	817.1

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TYPICAL PAVEMENT CROSS-SECTIONS

UNIT	BASEMENT TYPE
27, 28	STANDARD BASMT
29, 30	STANDARD BASMT
31, 32	WALK OUT
33, 34	WALK OUT
35, 36	WALK OUT
37, 38	WALK OUT
39, 40	WALK OUT/GARDEN VIEW
41, 42	STANDARD BASMT



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Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.

GRADING PLAN - WEST

ANDOVER WOODS CONDOMINIUMS
TOWNSHIP 3N
RANGE 11E
SECTION 9
CITY OF ROCHESTER HILLS
OAKLAND COUNTY
MICHIGAN

REVISED

9-30-14 PER CITY
9-16-14 PER CITY
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DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.

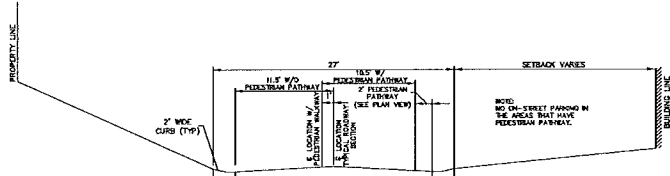
CITY FILE #98-025, SECTION 9
NOT TO BE USED AS
CONSTRUCTION DRAWINGS

FRK: 7
CHK:
SCALE: HOR 1"=40 FT.
VER 1"=4 FT.

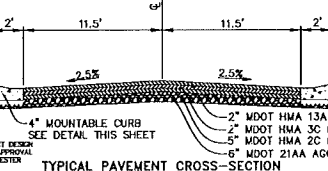
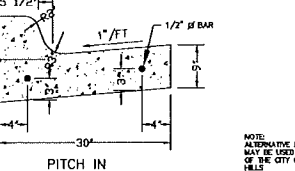
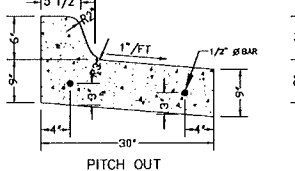
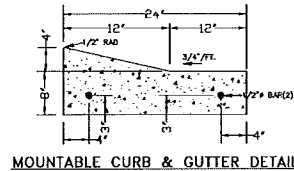
12-120

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCSDALE DRIVE, IN CENTER LINE OF ROCSDALE DRIVE, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCSDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63697 240 FEET EAST OF ROCSDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK. ELEV. = 820.10 N.A.V.D. 88 DATUM



INTERIOR ROADWAY/PEDESTRIAN PATHWAY SECTION - WEST SIDE:



MOUNTABLE CURB & GUTTER DETAIL

ROCHDALE DRIVE ENTRANCE CONCRETE CURB AND GUTTER

TYPICAL PAVEMENT CROSS-SECTION

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
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- FINISH GRADE
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- WALK OUT
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- PROP. SPOT ELEVATION
- PROP. CONTOUR

BASEMENT TYPES

UNIT	BASEMENT TYPE
1, 2	GARDEN VIEW
3, 4	GARDEN VIEW
5, 6	GARDEN VIEW
7, 8	GARDEN VIEW
9, 10	GARDEN VIEW
11, 12	GARDEN VIEW
13, 14	STANDARD BASMT
15, 16	STANDARD BASMT
17, 18	WALK OUT
19, 20	WALK OUT
21, 22	WALK OUT
23, 24	WALK OUT
25, 26	WALK OUT

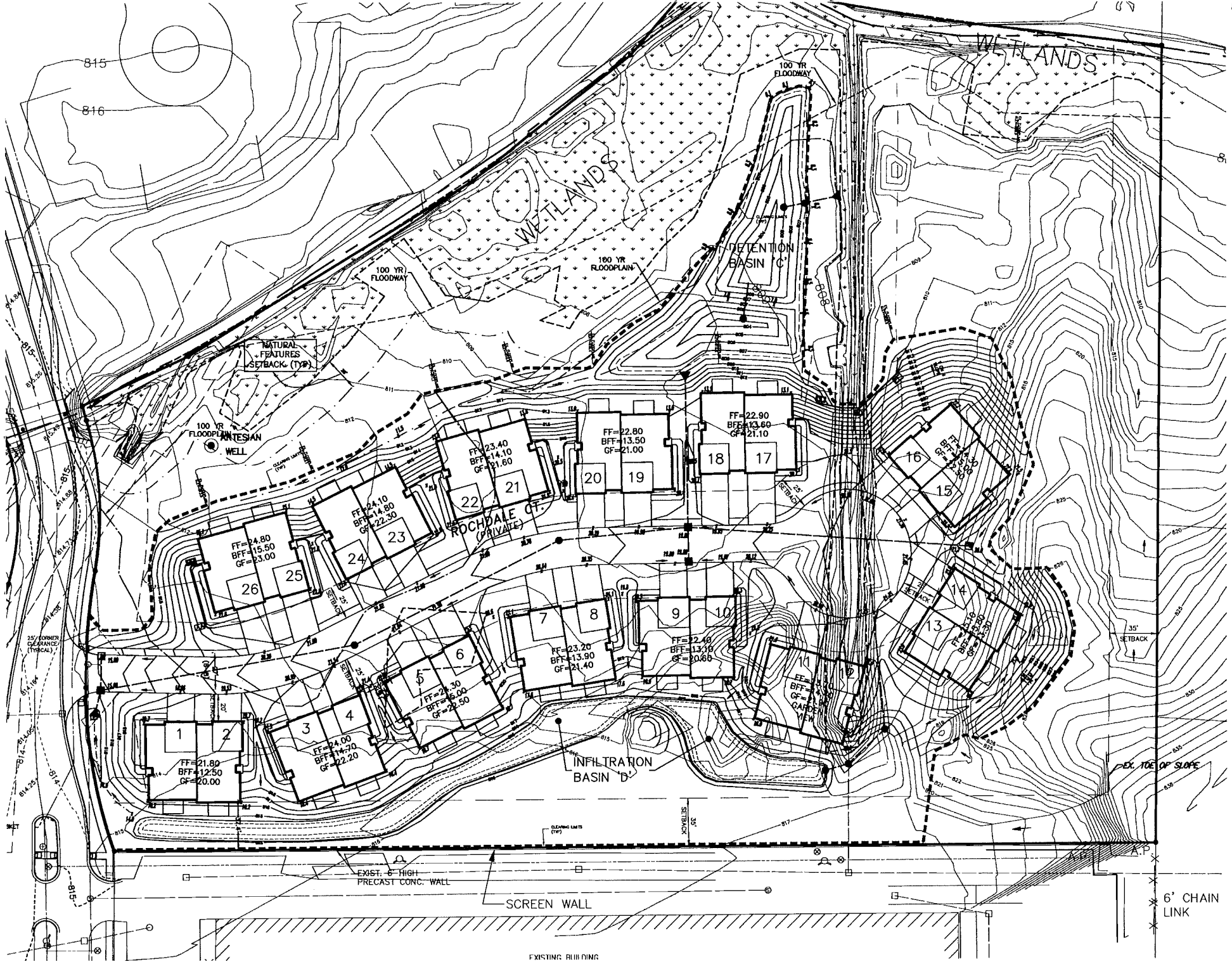
NOTES:

GRADING ACTIVITIES FOR THE PROPOSED DEVELOPMENT SHALL NOT AFFECT THE EXISTING ARTESIAN WELL.

RETAINING WALL ELEVATIONS

LOCATION	T/WALL ELEV	B/WALL ELEV
AA	822.0	821.0
BB	822.0	821.0
CC	813.0	811.0
DD	814.0	805.0
EE	814.0	811.0

UNITS	BASEMENT FLOOR ELEVATION	FLOOD PLAIN ELEV	ELEVATION DIFFERENCE (FT)
15-16	815.0	810.2	4.8
17-18	813.0	810.2	2.8
19-20	813.2	810.4	2.8
21-22	814.1	811.1	3.0
23-24	814.8	812.1	2.7
25-26	815.5	813.5	2.0
27-28	816.4	814.3	2.1
29-30	816.8	814.4	2.4
31-32	820.7	814.7	6.0
33-34	822.8	814.8	8.0
35-36	824.3	815.0	9.3
37-38	823.0	818.1	6.9
39-40	826.4	817.1	9.3
41-42	827.5	817.1	10.4



NOTE:
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CLIENT: ANDOVER WOODS, LLC.
GRADING PLAN - EAST
ANDOVER WOODS CONDOMINIUMS RANGE 11E
TOWNSHIP: 3RD HILLS
CITY OF: OAKLAND COUNTY
MICHIGAN
SECTION: 9

REVISED
0-30-14 PER CITY REVIEW
0-2-14 PER CITY REVIEW
5-20-14 PER CITY REVIEW
12-16-13 PER CITY REVIEW
8-19-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW
DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.

CITY FILE #98-025, SECTION 9

NOT TO BE USED AS
CONSTRUCTION DRAWINGS

SCALE: HORIZ 1"=40' FT.
VERT 1"=4' FT.
12-120

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCSDALE IN THE CENTER LINE OF ROCSDALE DRIVE, IN BLVD. ISLAND, ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCSDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE, ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63697 240 FEET EAST OF ROCSDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK, ELEV. = 820.10 N.A.V.D. 88 DATUM

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. CUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN
- PROP. STORM SEWER
- PROP. WATER MAIN
- PROP. SANITARY SEWER
- PROP. MANHOLE
- PROP. CATCH BASIN
- PROP. END SECTION
- PROP. GATE VALVE
- PROP. HYDRANT
- FRESH GRADE
- DROP BRICK LEDGE
- WALK OUT
- PROP. DRAINAGE ARROW
- PROP. SPOT ELEVATION
- PROP. CONTOUR

SUMP PUMP NOTES:

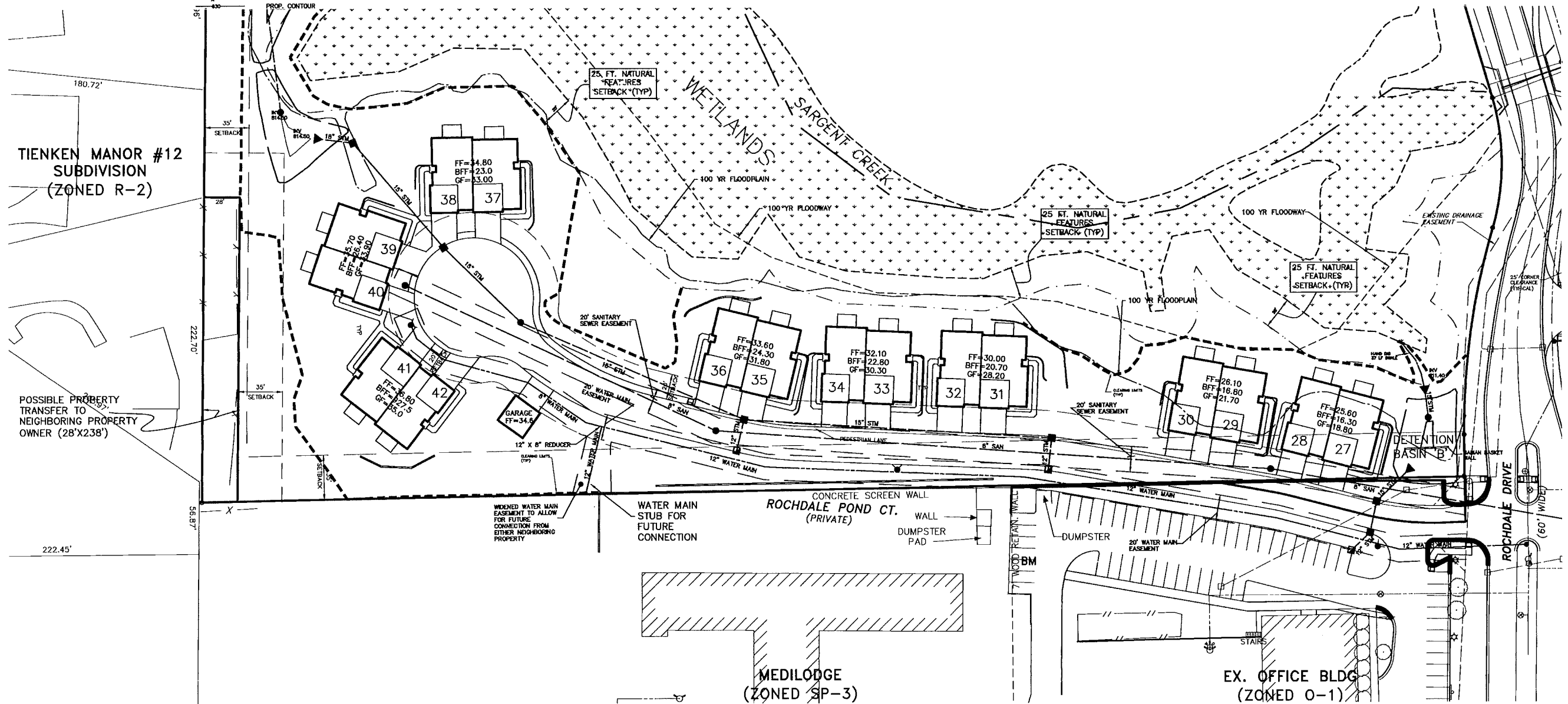
- SUMP PUMP LEADS FOR UNITS 27-30 TO DISCHARGE DIRECTLY INTO REAR YARD SWALE.
- SUMP PUMP LEADS FOR UNITS 31-40 TO DISCHARGE DIRECTLY INTO THE ADJACENT STORM SEWER.
- SUMP PUMP LEADS FOR UNITS 41-42 TO DISCHARGE DIRECTLY INTO REAR YARD SWALE.

NOTES:

- 1) WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 6 FEET OF COVER.
- 2) SANITARY SEWER SERVICE LEADS SHALL BE INSTALLED AT A MINIMUM ONE PERCENT (1%) GRADE.
- 3) DOWNSPOUTS, FOUNDATION DRAINS, WEEP TILES OR ANY CONDUIT THAT CARRIES STORMWATER OR GROUNDWATER WILL NOT BE PERMITTED TO DISCHARGE INTO THE SANITARY SEWER SYSTEM.
- 4) COMPACTED GRANULAR BACKFILL SHALL BE PROVIDED ON ALL UTILITIES WITHIN A 1 ON 1 INFLUENCE OF THE PAVEMENT, INCLUDING THE OVERFLOW PARKING AREAS.

UTILITY EASEMENTS:

- PROPOSED SANITARY SEWER EASEMENT TO BE 20' WIDE
- PROPOSED WATER MAIN EASEMENT TO BE 20' WIDE



NOTE:
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DETENTION BASIN 'B' DISCHARGE NOTE:

THE DISCHARGE FROM DETENTION BASIN 'B' IS INTO THE EXISTING FESSLER DRAIN WHICH IS OWNED AND OPERATED BY THE THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER. APPROVAL FROM THE OCWRC IS REQUIRED FOR CONNECTION.

CITY FILE #98-025, SECTION 9
NOT TO BE USED AS
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REVISED

UTILITY PLAN - WEST

ANDOVER WOODS CONDOMINIUMS RANGE 11E
SECTION 9
CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

9-30-14 PER CITY REVIEW	9
9-2-14 PER CITY REVIEW	
5-20-14 PER CITY REVIEW	
12-18-13 PER CITY REVIEW	
8-19-13 UPDATE WETLANDS	
6-24-13 PER CITY REVIEW	
DATE: 1-08-13	
DRAWN BY: D.J.L.	
CHECKED BY: D.J.L.	
SCALE: HOR 1"=40 FT. VER 1"=10 FT.	

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHDALE IN THE CENTER LINE OF ROCHDALE DRIVE, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
- 3) ALUMINUM DISC #63897 240 FEET EAST OF ROCHDALE, ON NORTH SIDE WALTON, BETWEEN B/C AND F/WALK. ELEV. = 820.10 N.A.V.D. 88 DATUM

SUMP PUMP NOTES:
 - SUMP PUMP LEADS FOR UNITS 1-13 TO DISCHARGE DIRECTLY INTO REAR YARD SWALE.
 - SUMP PUMP LEADS FOR UNITS 14-16 TO DISCHARGE DIRECTLY INTO THE ADJACENT STORM SEWER.
 - SUMP PUMP LEADS FOR UNITS 17-26 TO DISCHARGE DIRECTLY INTO REAR YARD SWALE.

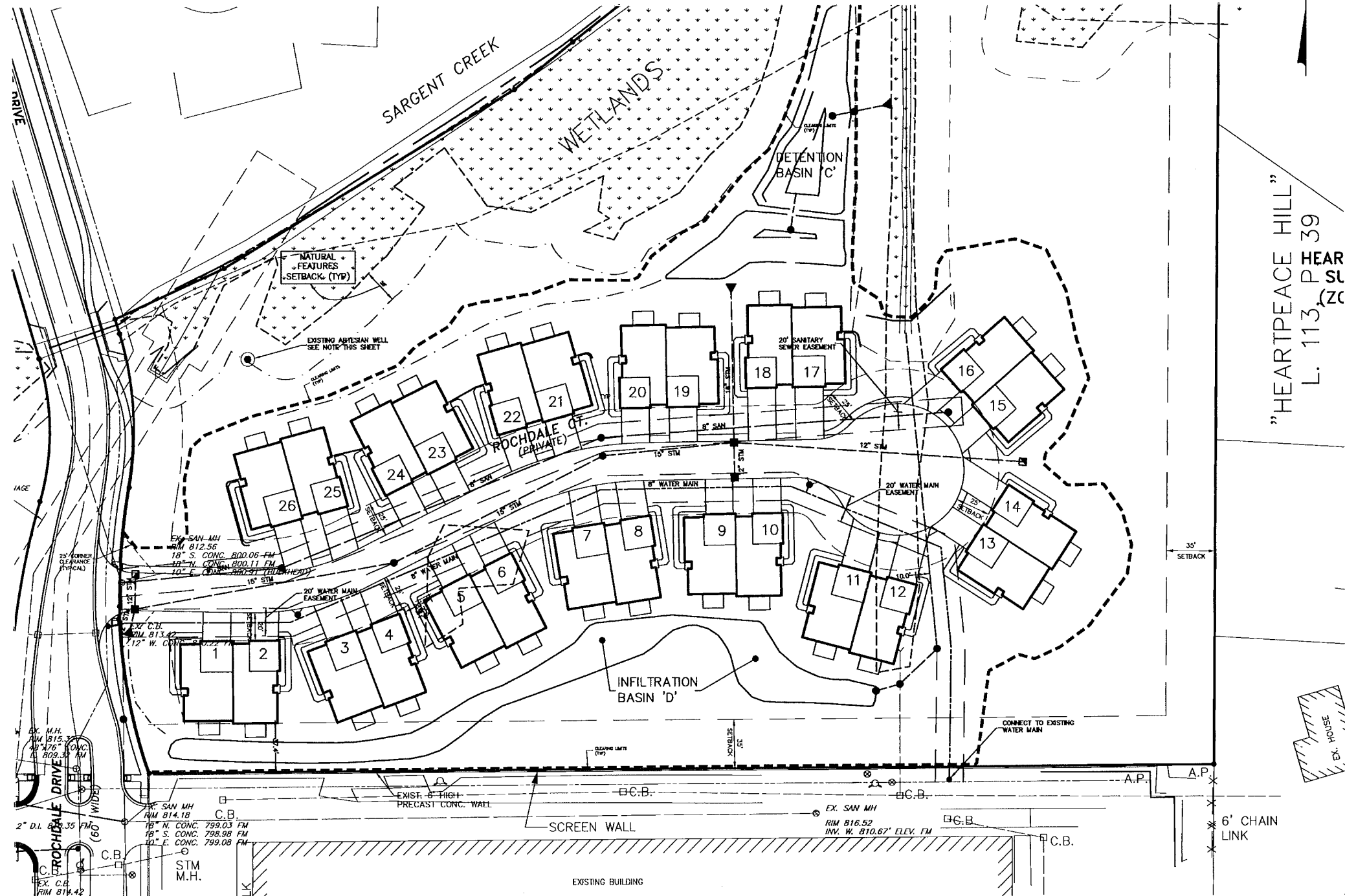
UTILITY EASEMENTS:
 PROPOSED SANITARY SEWER EASEMENT TO BE 20' WIDE
 PROPOSED WATER MAIN EASEMENT TO BE 20' WIDE

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN
- PROP. STORM SEWER
- PROP. WATER MAIN
- PROP. SANITARY SEWER
- PROP. MANHOLE
- PROP. CATCH BASIN
- PROP. END SECTION
- PROP. GATE VALVE
- PROP. HYDRANT
- PROP. FINISH GRADE
- DROP BRICK LEDGE
- WALK OUT
- PROP. DRAINAGE ARROW
- PROP. SPOT ELEVATION
- PROP. CONTOUR

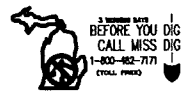
NOTES:

- 1) WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 6 FEET OF COVER.
- 2) SANITARY SEWER SERVICE LEADS SHALL BE INSTALLED AT A MINIMUM ONE PERCENT (1%) GRADE.
- 3) DOWNSPOUTS, FOUNDATION DRAINS, WEEP TILES OR ANY CONDUIT THAT CARRIES STORMWATER OR GROUNDWATER WILL NOT BE PERMITTED TO DISCHARGE INTO THE SANITARY SEWER SYSTEM.
- 4) COMPACTED GRANULAR BACKFILL SHALL BE PROVIDED ON ALL UTILITIES WITHIN A 1 ON 1 INFLUENCE OF THE PAVEMENT, INCLUDING THE OVERFLOW PARKING AREAS.



ARTESIAN WELL NOTE:

PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT, THE DEVELOPER IS TO SUPPLY A REPORT TO THE CITY OF ROCHESTER HILLS FROM A LICENSED WELL DRILLER STATING THAT THE EXISTING WELL IS CAPPED AND DOES NOT CONTRIBUTE WATER TO THE NEARBY WETLAND.



NOTE:
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"HEARTPEACE HILL"
 L. 113, P. 39
 HEAR SL
 (ZC)

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CLIENT: ANDOVER WOODS, LLC.
UTILITY PLAN-EAST
 ANDOVER WOODS CONDOMINIUMS
 TOWNSHIP: 3N RANGE: 11E
 SECTION: 9 CITY OF ROCHESTER HILLS
 OAKLAND COUNTY MICHIGAN

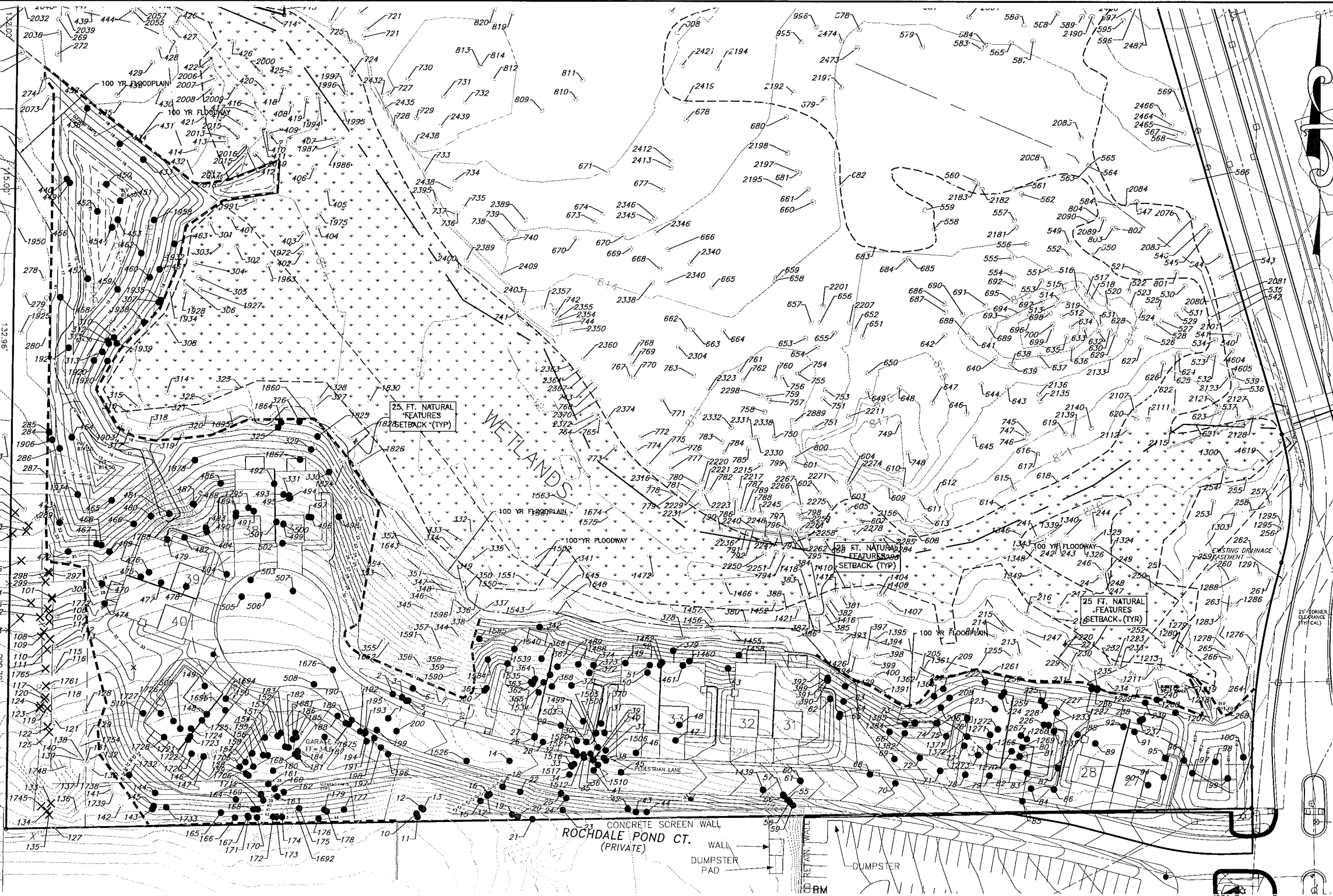
REVISIONS
9-30-14 PER CITY REVIEW
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8-19-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW
DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.
SCALE: HOR 1"=40 FT. VER 1"=12 FT.
10
12-120

CITY FILE #98-025, SECTION 9
 NOT TO BE USED AS
 CONSTRUCTION DRAWINGS

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 DAMAGED ON THE ADJACENT PROPERTIES, THE DAMAGED WILL BE EITHER REPLACED ON THE OWNER'S PROPERTY ON AN INCH FOR INCH BASIS OR A FINE IN THE SUM OF \$122.00 PER CALIPER INCH WILL BE ISSUED AGAINST THE DEVELOPMENT. 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 ERRECTED 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 TPF INSPECTION.
- THE TREE CONSERVATION ORDINANCE PROHIBITS ANY CONSTRUCTION OR DEVELOPMENT ACTIVITIES WITHIN THE DRIP LINE OF ANY REGULATED TREES NOT APPROVED FOR REMOVAL, INCLUDING SWALES, BUT NOT LIMITED TO, 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/CARD/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 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.



LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. MAILBOX
- EX. POWER POLE
- EX. SIGN

TREE REMOVAL LEGEND

- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- TREE PROTECTION FENCE
- × TREES TO BE REMOVED PER AGREEMENT WITH NEIGHBOR

WOODLAND NOTE:
 SEE SHEETS 13 - 14 FOR TREE INVENTORY AND LIST OF TREES TO BE REMOVED.

NOTE:
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NOTE:
 TREE SURVEY BY OTHERS AS INDICATED ON TREE SURVEY DRAWINGS PREPARED BY HENNESSEY ENGINEERS TREE SURVEY PLANS ORIGINALLY DATED FEBRUARY 2008.

TREE COUNT:
 2175 TOTAL TREES INSIDE PROPERTY BOUNDS
 651 TOTAL TREES PROPOSED TO BE REMOVED
 1524 TOTAL TREES PROPOSED TO REMAIN
 70% PERCENTAGE OF TOTAL TREES TO REMAIN

TREE REPLACEMENT ANALYSIS:
 651 TOTAL TREES TO BE REMOVED
 508 DEAD, DISEASED OR DAMAGED TREES TO BE REMOVED
 143 TREES TO BE REPLACED.

SEE SHEETS L1 & L2 FOR WOODLAND REPLACEMENT LOCATIONS

THE FOLLOWING TREES: (TAG NUMBERS: 292, 293, 294, 295, 297, 298, 299, 101, 300, 104, 105, 1772, 102, 107, 103, 114, 109, 110, 111, 1765, 1761, 117, 120, 124, 119, 1745, 134, 135, 133, 122, 123, 124, 125) ARE TO BE CUT AT GROUND LEVEL, STUMP TO REMAIN, AS PART OF AN AGREEMENT BETWEEN THE APPLICANT/DEVELOPER AND THE ADJACENT PROPERTY OWNER. SAID TREES DO NOT COUNT TOWARD THE TREE REMOVAL QUANTITIES AS THEY ARE LOCATED ON A STRIP OF LAND TO BE DEEDED FROM THE APPLICANT/DEVELOPER TO THE ADJACENT PROPERTY OWNER.

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 ENGINEERS & LAND SURVEYORS

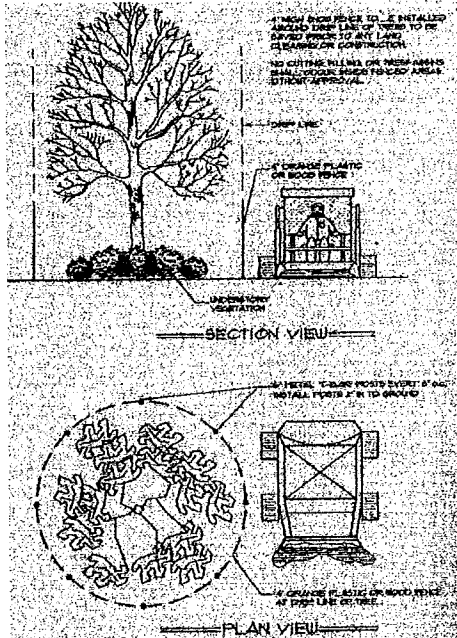
RESIDENTIAL
 Site Condominium
 Plat Plans
 COMMERCIAL
 Site Planning
 Initial & Final Plat
 Land Surveying
 ALTA SURVEY
 Boundary Surveys
 Easement Surveys
 Construction Staking

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WOODLAND PLAN - WEST
 ANDOVER WOODS CONDOMINIUMS
 TOWNSHIP: JN
 CITY OF ROCHESTER HILLS
 OAKLAND COUNTY
 MICHIGAN
 SECTION: 9
 RANGE: 11E

CLIENT: ANDOVER WOODS, LLC.
 REVISIONS:
 10-16-14 PER NEIGHBOR
 10-15-14 UPDATE PLAN
 9-30-14 PER CITY REVIEW
 9-2-14 PER CITY REVIEW
 5-20-14 PER CITY REVIEW
 12-16-13 PER CITY REVIEW
 8-18-13 UPDATE WETLANDS
 6-24-13 PER CITY REVIEW
 DATE: 1-08-13
 DRAWN BY: DJL
 CHECKED BY: DJL
 CITY FILE #98-025, SECTION 9
 NOT TO BE USED AS CONSTRUCTION DRAWINGS
 SCALE: HOR 1"=40 FT.
 VER 1"= FT.
 11
 12-120



TREE PROTECTION DETAIL
 TREE PROTECTION FENCE TO BE PLACED AT THE CLEARING LIMITS LINE AS INDICATED ON THESE PLANS.

LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- SET IRON
- EX. GUY WIRE
- EX. TREE LINE
- FD. IRON
- EX. WALLBOX
- EX. POWER POLE
- EX. SIGN



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TREE REMOVAL LEGEND

- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

NOTE:

- TREE SURVEY BY OTHERS AS INDICATED ON TREE SURVEY DRAWINGS PREPARED BY HENNESSEY ENGINEERS TREE SURVEY PLANS ORIGINALLY DATED FEBRUARY 2008.
- TREE SIZE INVENTORY AND ANALYSIS PREPARED BY BROOKS WILLIAMSON & ASSOCIATES IN MARCH 2013.

CITY FILE #98-025, SECTION 9

**NOT TO BE USED AS
 CONSTRUCTION DRAWINGS**

RESIDENTIAL
 COMMERCIAL
 INDUSTRIAL
 AGRICULTURAL
 SURVEYING
 BOUNDARY SURVEY
 CONSTRUCTION SURVEY

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



CLIENT: ANDOVER WOODS, LLC.
WOODLAND PLAN-EAST
 ANDOVER WOODS CONDOMINIUMS RANGE 11E
 SECTION 9
 CITY OF ROCHESTER HILLS
 OAKLAND COUNTY
 MICHIGAN

REVISED	9-30-14 PER CITY REVIEW
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	12-18-13 PER CITY REVIEW
	8-18-13 UPDATE METLANDS
	6-24-13 PER CITY REVIEW
DATE: 1-08-13	
DRAWN BY: D.J.	
CHECKED BY: D.J.	
FBK:	12
CHP:	SCALE HOR 1"=40 FT.
VER 1"=40 FT.	12-120

EAST SIDE:

Table with columns: TAG NUMBER, DIAMETER (INCHES), COMMON NAME, SCIENTIFIC NAME, CONDITION, BASE ELEVATION. Contains tree inventory data for the East Side.

WEST SIDE:

Table with columns: TAG NUMBER, DIAMETER (INCHES), COMMON NAME, SCIENTIFIC NAME, CONDITION, BASE ELEVATION. Contains tree inventory data for the West Side.

GREENTECH ENGINEERING, INC. CIVIL ENGINEERS & LAND SURVEYORS. 5111 W. Pontiac Trail, Wixom, MI 48393. Phone: (248) 698-0700 Fax: (248) 698-0701

ANDOVER WOODS, L.L.C. TREE LIST. ANDOVER WOODS CONDOMINIUMS RANGE 1E. CITY OF ROBERTS HILLS. OKARA COUNTY, MICHIGAN. SECTION: 9. REVISED.

TREE REMOVAL LEGEND. 8078 EXISTING TREE TO REMAIN. 8079 EXISTING TREE TO BE REMOVED. NOTE: - TREE SURVEY PROVIDED BY OTHERS. - TREE INVENTORY AND ANALYSIS PREPARED BY BROOKS WILLIAMSON & ASSOCIATES. CITY FILE #98-025, SECTION 9. NOT TO BE USED AS CONSTRUCTION DRAWINGS. DRAWN BY: D.L. CHECKED BY: D.L. FRK: 0. SCALE: HORIZ 1" = 120'. 12-120

TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION	TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION	TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION	TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION	TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION	TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	BASE ELEVATION						
226	8.8	Box elder	Acer negundo	Good	813	270	12.8	Box elder	Acer negundo	Good	813.43	410	13.2	Box elder	Acer negundo	Good	813.33	809	7.8	Maple	Acer spp.	Good	797.75	810	8.8	Box elder	Acer negundo	Good	814	844	10	Maple	Acer spp.	Good	813.72	811	8.8	Box elder	Acer negundo	Good	814.22

GREENTECH ENGINEERS & LAND SURVEYORS

CIVIL ENGINEERS & LAND SURVEYORS
5111 W. Pontiac Trail, Wixom, MI 48393
Ph: (248) 858-0700 Fax: (248) 858-0701

GREENTECH ENGINEERS & LAND SURVEYORS

81 TREE LIST

Know what's below Call before you dig.

CLIENT: ANDOVER WOODS, L.L.C.

REMOVED

TREE REMOVAL LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

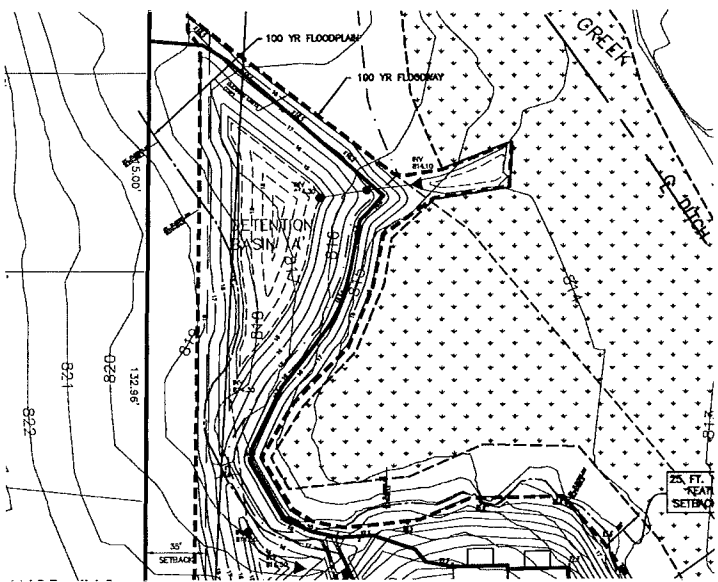
NOTE:
- TREE SURVEY PROVIDED BY OTHERS.
- TREE INVENTORY AND ANALYSIS PREPARED BY BROOKS WILLIAMSON & ASSOCIATES.

DATE: 1-08-13
DRAWN BY: DJL
CHECKED BY: DJL

GITY FILE #98-025, SECTION 9

NOT TO BE USED AS CONSTRUCTION DRAWINGS

FBI: 14
CHP: 14
SCALE: HOR 1" = 120' VER 1" = 120'



DETENTION BASIN A
SCALE: 1"=50'

DETENTION BASIN 'A'
25 YEAR STORM DETENTION DESIGN
(OAKLAND COUNTY METHOD)

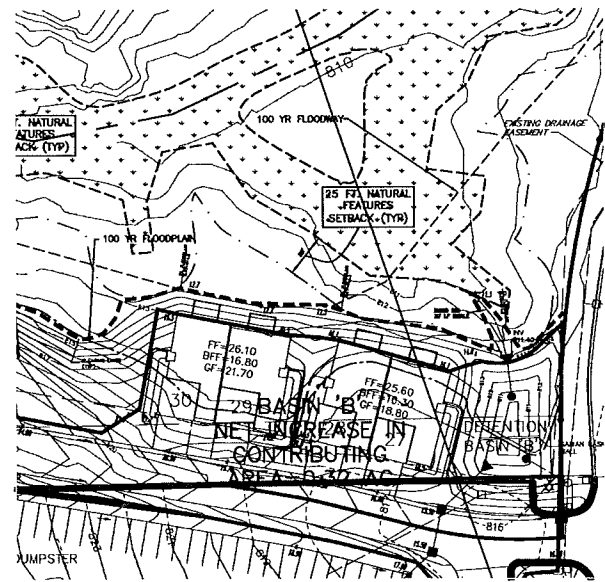
USE	AREA	COEFFICIENT 'C'
BUILDING & WALKS	0.85 AC	0.85
ROADWAY & PUBLIC WALKS	0.43 AC	0.85
DRIVE & PUBLIC WALKS	0.18 AC	0.85
OPEN SPACE AREA	2.07 AC	0.35
TOTAL AREA	3.51 AC	

WEIGHTED RUNOFF COEFFICIENT $C_w = 0.57$
ALLOWABLE DISCHARGE @ 0.30 CFS/AC = 0.88 CFS

$C_p = ((C_w)/A)^{0.5}$ = 0.35 CFS/AC IMPERV.
 $T = -25 + ((8082.3/C_p)/0.2)$ = 128.58 MIN

Storage Volume Required
 $V_s = (129000)(T)/(1440) - 4000(T)$ = 8963.6 CF OF IMPERV.
 $V_t = (W)(A)(C_p)$ = 16872 CF (REQUIRED)
18000 CF (PROVIDED)

BOTTOM OF STORAGE ELEV 814.3
TOP OF STORAGE ELEV 817.0
PRELIMINARY ELEV 818.0



DETENTION BASIN B
SCALE: 1"=50'

DETENTION BASIN 'B'
25 YEAR STORM DETENTION DESIGN
(OAKLAND COUNTY METHOD)

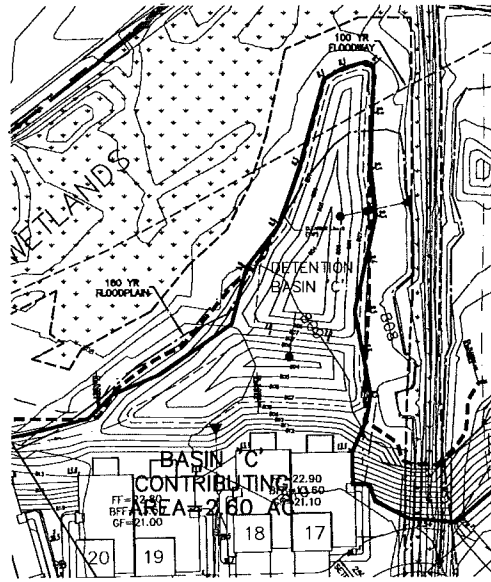
USE	AREA	COEFFICIENT 'C'
BUILDING & WALKS	0.85 AC	0.85
ROADWAY & PUBLIC WALKS	0.43 AC	0.85
DRIVE & PUBLIC WALKS	0.18 AC	0.85
OPEN SPACE AREA	2.07 AC	0.35
TOTAL AREA	3.51 AC	

WEIGHTED RUNOFF COEFFICIENT $C_w = 0.57$
ALLOWABLE DISCHARGE @ 0.30 CFS/AC = 0.88 CFS

$C_p = ((C_w)/A)^{0.5}$ = 0.35 CFS/AC IMPERV.
 $T = -25 + ((8082.3/C_p)/0.2)$ = 128.58 MIN

Storage Volume Required
 $V_s = (129000)(T)/(1440) - 4000(T)$ = 8963.6 CF OF IMPERV.
 $V_t = (W)(A)(C_p)$ = 16872 CF (REQUIRED)
18000 CF (PROVIDED)

BOTTOM OF STORAGE ELEV 814.3
TOP OF STORAGE ELEV 817.0
PRELIMINARY ELEV 818.0



DETENTION BASIN C
SCALE: 1"=50'

DETENTION BASIN 'C'
25 YEAR STORM DETENTION DESIGN
(OAKLAND COUNTY METHOD)

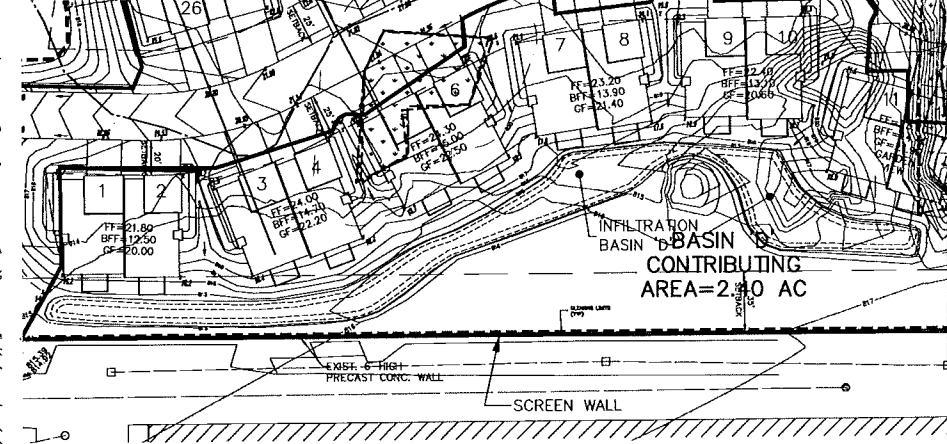
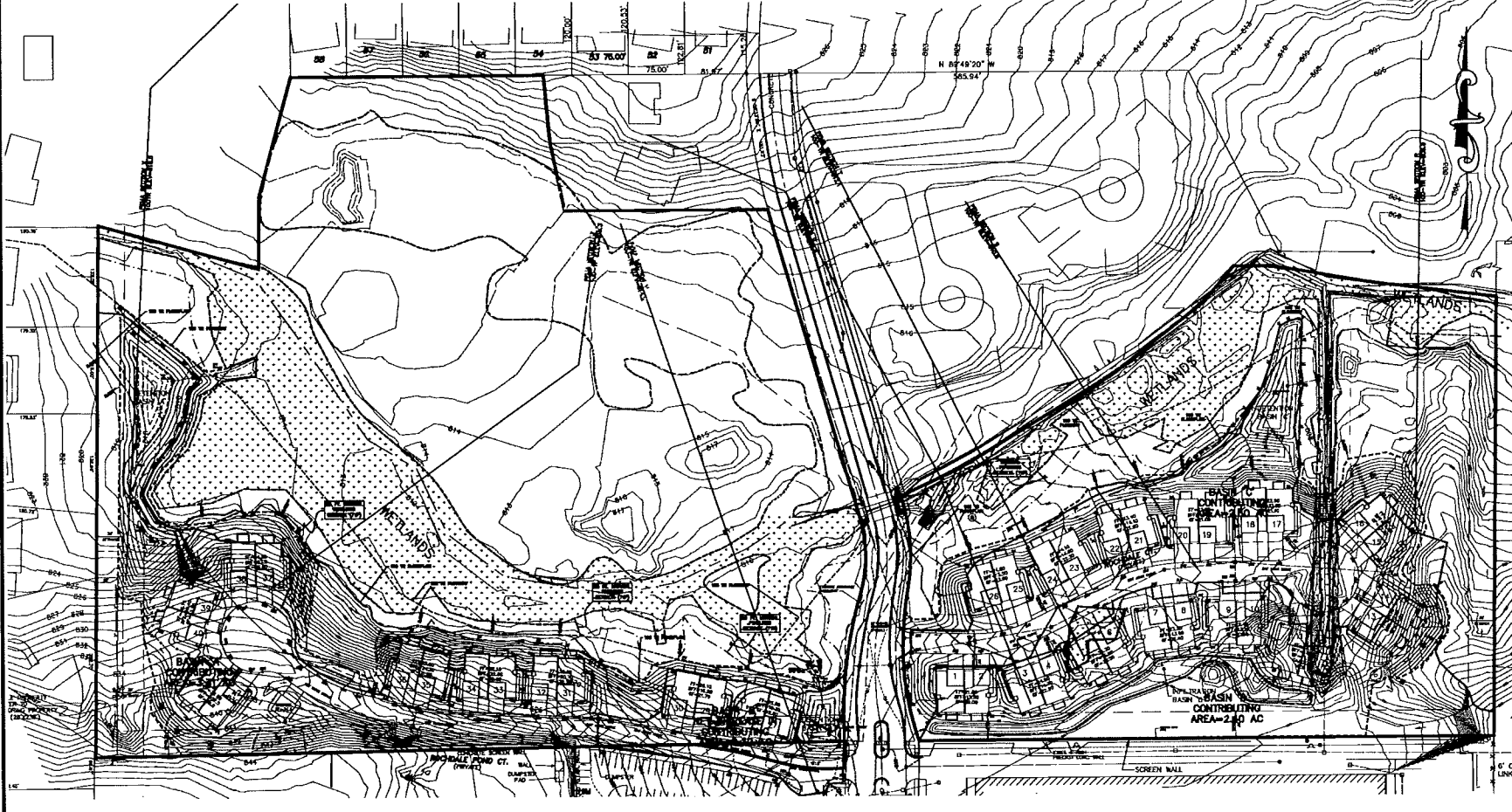
USE	AREA	COEFFICIENT 'C'
BUILDING & WALKS	0.85 AC	0.85
ROADWAY & PUBLIC WALKS	0.43 AC	0.85
DRIVE & PUBLIC WALKS	0.18 AC	0.85
OPEN SPACE AREA	2.07 AC	0.35
TOTAL AREA	3.51 AC	

WEIGHTED RUNOFF COEFFICIENT $C_w = 0.57$
ALLOWABLE DISCHARGE @ 0.30 CFS/AC = 0.88 CFS

$C_p = ((C_w)/A)^{0.5}$ = 0.35 CFS/AC IMPERV.
 $T = -25 + ((8082.3/C_p)/0.2)$ = 128.58 MIN

Storage Volume Required
 $V_s = (129000)(T)/(1440) - 4000(T)$ = 8963.6 CF OF IMPERV.
 $V_t = (W)(A)(C_p)$ = 16872 CF (REQUIRED)
18000 CF (PROVIDED)

BOTTOM OF STORAGE ELEV 814.3
TOP OF STORAGE ELEV 817.0
PRELIMINARY ELEV 818.0



INFILTRATION BASIN D
SCALE: 1"=50'

INFILTRATION BASIN 'D'
25 YEAR STORM DETENTION DESIGN
(OAKLAND COUNTY METHOD)

USE	AREA	COEFFICIENT 'C'
BUILDING & WALKS	0.75 AC	0.85
ROADWAY & PUBLIC WALKS	0.43 AC	0.85
DRIVE & PUBLIC WALKS	0.18 AC	0.85
OPEN SPACE AREA	2.07 AC	0.35
TOTAL AREA	3.43 AC	

WEIGHTED RUNOFF COEFFICIENT $C_w = 0.53$
ALLOWABLE DISCHARGE @ 0.30 CFS/AC = 0.88 CFS

$C_p = ((C_w)/A)^{0.5}$ = 0.33 CFS/AC IMPERV.
 $T = -25 + ((8082.3/C_p)/0.2)$ = 121.17 MIN

Storage Volume Required
 $V_s = (129000)(T)/(1440) - 4000(T)$ = 8648.8 CF OF IMPERV.
 $V_t = (W)(A)(C_p)$ = 15828 CF (REQUIRED)
17000 CF (PROVIDED)

BOTTOM OF STORAGE ELEV 814.0
TOP OF STORAGE ELEV 816.5
PRELIMINARY ELEV 817.5

GROUND WATER RECHARGE - BASIN 'D'
REQUIRED INFILTRATION VOLUME @ 0.30 CFS/AC = 1163 CF
INFILTRATION AREA PROVIDED IN AREA 'D' = 1163 CF

RESIDENTIAL
Site Assessment
Multi-Family
Commercial
Industrial
Agricultural
Site Planning
Construction
Land Surveying
SURVEYING
Boundary Surveys
Easement Surveys
Construction Staking

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS



Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.
STORMWATER MANAGEMENT ANALYSIS

ANDOVER WOODS CONDOMINIUMS RANGE 11E
SECTION 9
TOWNSHIP: 3N
CITY OF: ORCHARD HILLS
OAKLAND COUNTY MICHIGAN

REVISED

9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
5-20-14 PER CITY REVIEW
12-16-13 PER CITY REVIEW
8-18-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW

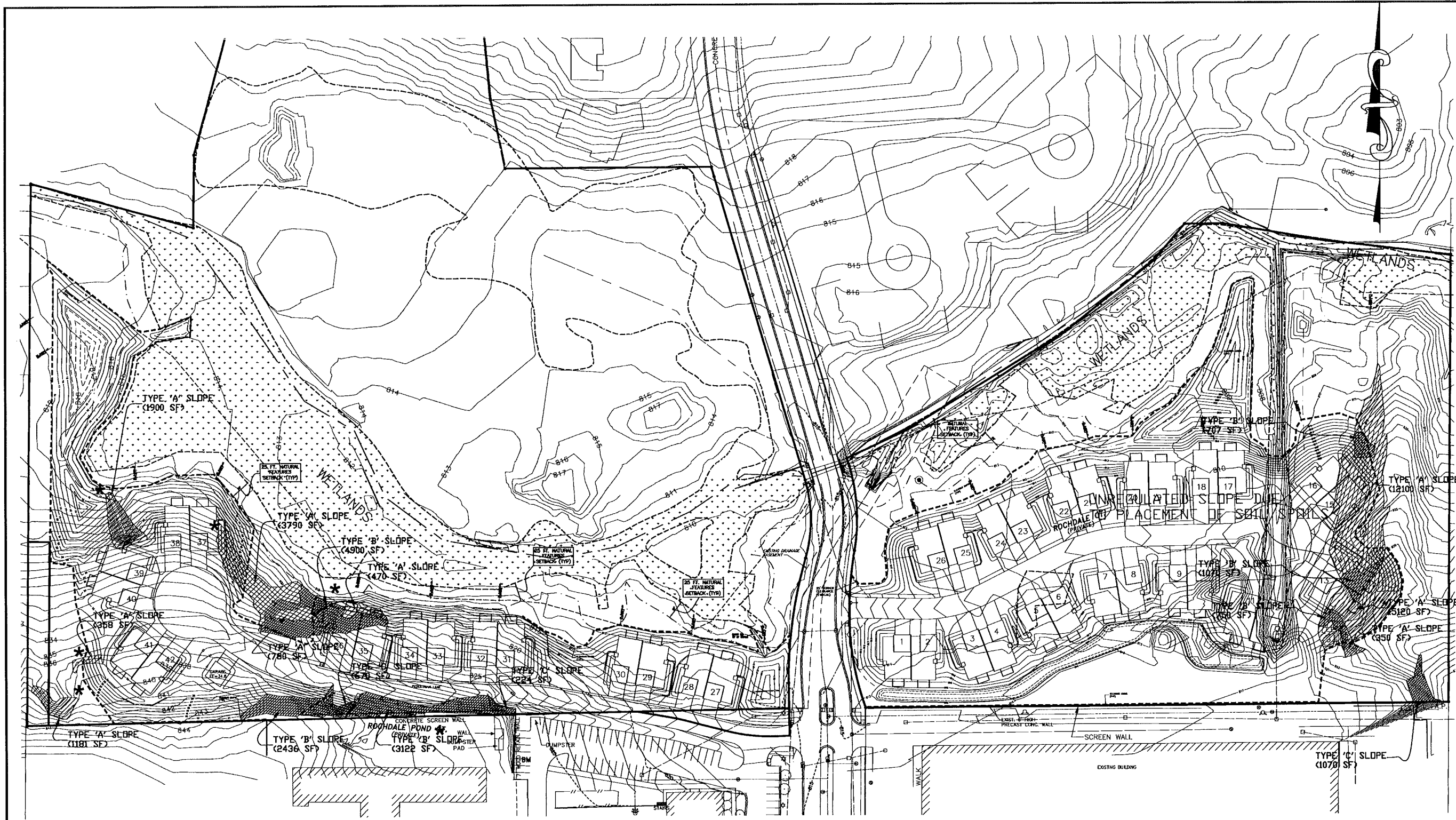
DATE: 1-08-13
DRAWN BY: D.J.
CHECKED BY: D.J.




FEK: _____
CHF: _____

SCALE: HORIZ 1"=50 FT.
VERT 1"= _____ FT.

15
12-120

CITY FILE #98-025, SECTION 9
NOT TO BE USED AS
CONSTRUCTION DRAWINGS



-  SLOPE TYPE A
EXISTING SLOPES BETWEEN 20% AND 24%
-  SLOPE TYPE B
EXISTING SLOPES BETWEEN 25% AND 39%
-  SLOPE TYPE C
EXISTING SLOPES 40% OR GREATER

* ALTHOUGH SLOPES IN THESE AREAS ARE GREATER THAN 20%, THEY ARE NOT REGULATED BY THE STEEP SLOPE ORDINANCE BECAUSE THEY ARE LESS THAN 10 FEET IN ELEVATION CHANGE OR LESS THAN 5,000 SQ. FT. IN AREA.

CITY FILE #98-025, SECTION 9
NOT TO BE USED AS
CONSTRUCTION DRAWINGS

RESIDENTIAL
COMMERCIAL
INDUSTRIAL
LAND SURVEYING
BOUNDARY SURVEYING
CONSTRUCTION STAKING

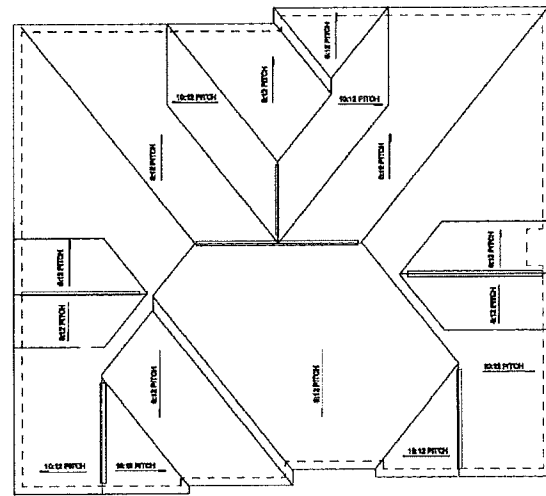
GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
5111 W. Peatles Trail, Weston, MI 48393
Phone: (248) 868-0700 Fax: (248) 868-0701



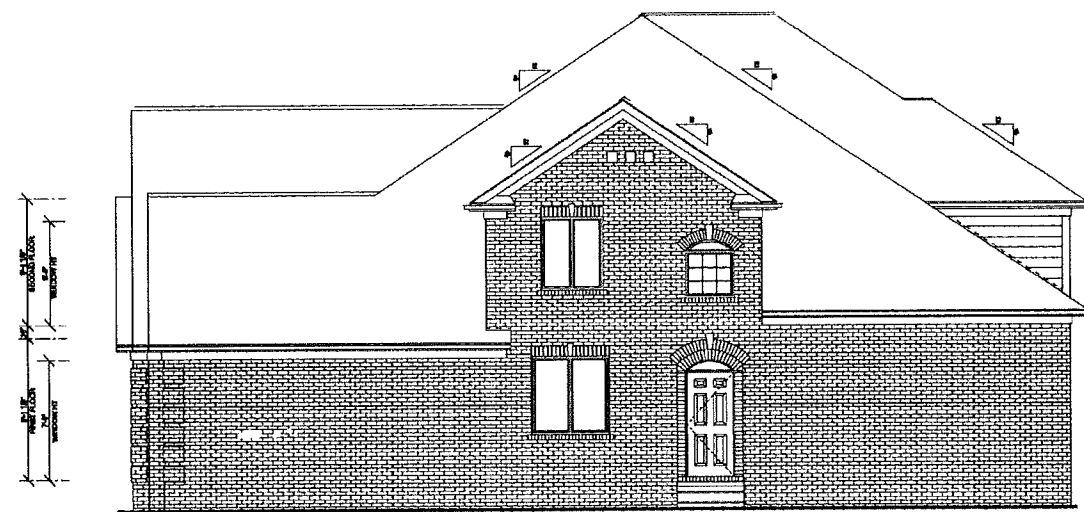
811
Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.
STEEP SLOPE ANALYSIS
ANDOVER WOODS CONDOMINIUMS RANGE T1E
SECTION 9 CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

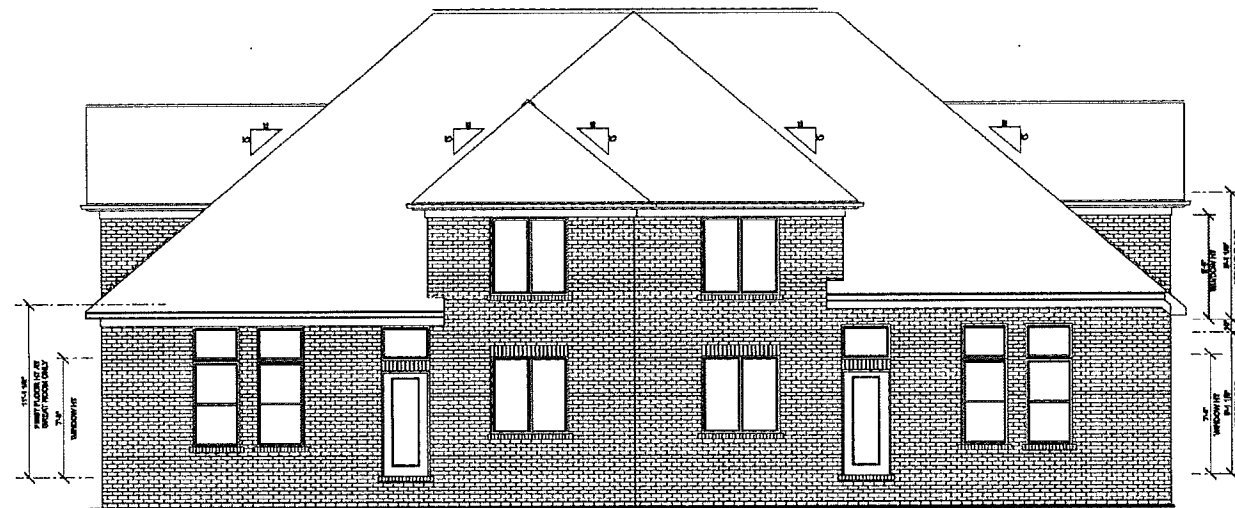
REVISED
9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
5-20-14 PER CITY REVIEW
12-18-13 PER CITY REVIEW
8-18-13 UPDATE WETLANDS
8-24-13 PER CITY REVIEW
DATE: 1-08-13
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.
0 80 160
FBK:
CHF:
SCALE HOR 1"=160 FT.
VER 1"= FT.
16
12-120



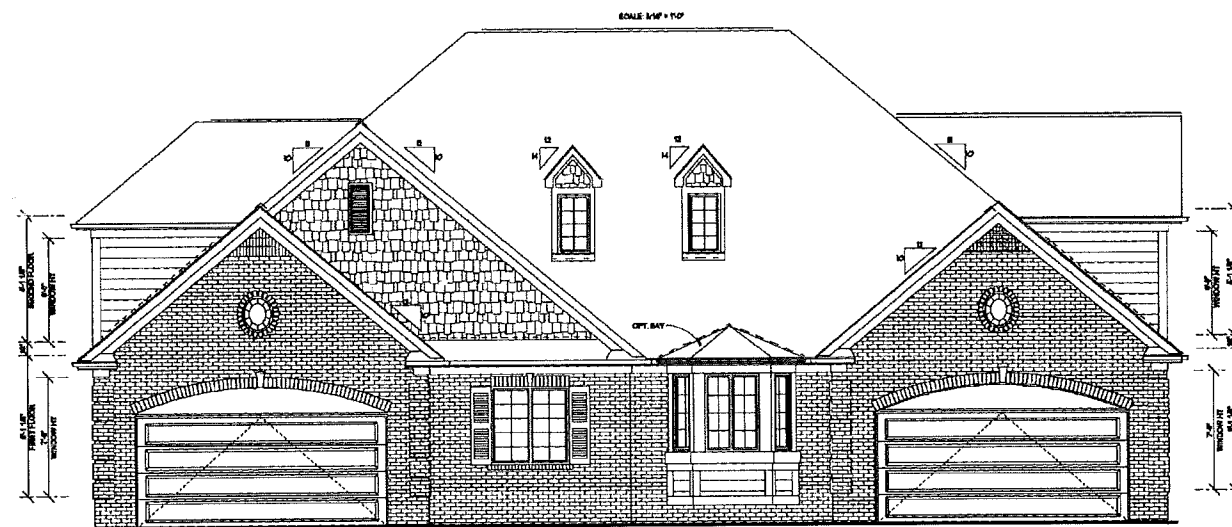
ROOF PLAN



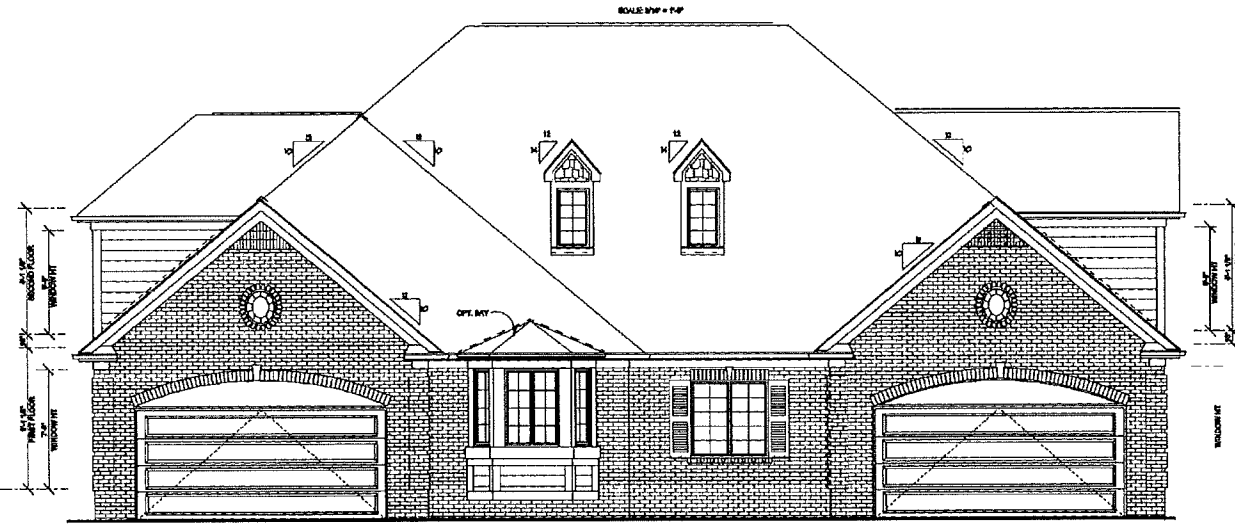
RIGHT SIDE ELEVATION



REAR ELEVATION



FRONT ELEVATION OPT B



FRONT ELEVATION OPT A

CITY FILE #13-___, SECTION 9

NOT TO BE USED AS
CONSTRUCTION DRAWINGS

RESIDENTIAL
Site Condominium
Plot Plans
COMMERCIAL
Site Planning
Site Analysis
Boundary & Utility
Location of Utilities
SUBSIDIARY
A.L.A. Survey
Topographic Surveys
Photogrammetric
Construction Staking

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

51111 W. Pontiac Trl., Wacora, MI 48393
Phone: (248) 688-0700 Fax: (248) 688-0701



811
Know what's below
Call before you dig.

CLIENT: ANDOVER WOODS, LLC.

BUILDING ELEVATIONS

ANDOVER WOODS CONDOMINIUMS
TOWNSHIP: 3N RANGE: 11E
SECTION: 9 CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

REVISED

9-2-14 PER CITY REVIEW

DATE: 1-8-13

DRAWN BY: D.J.L.

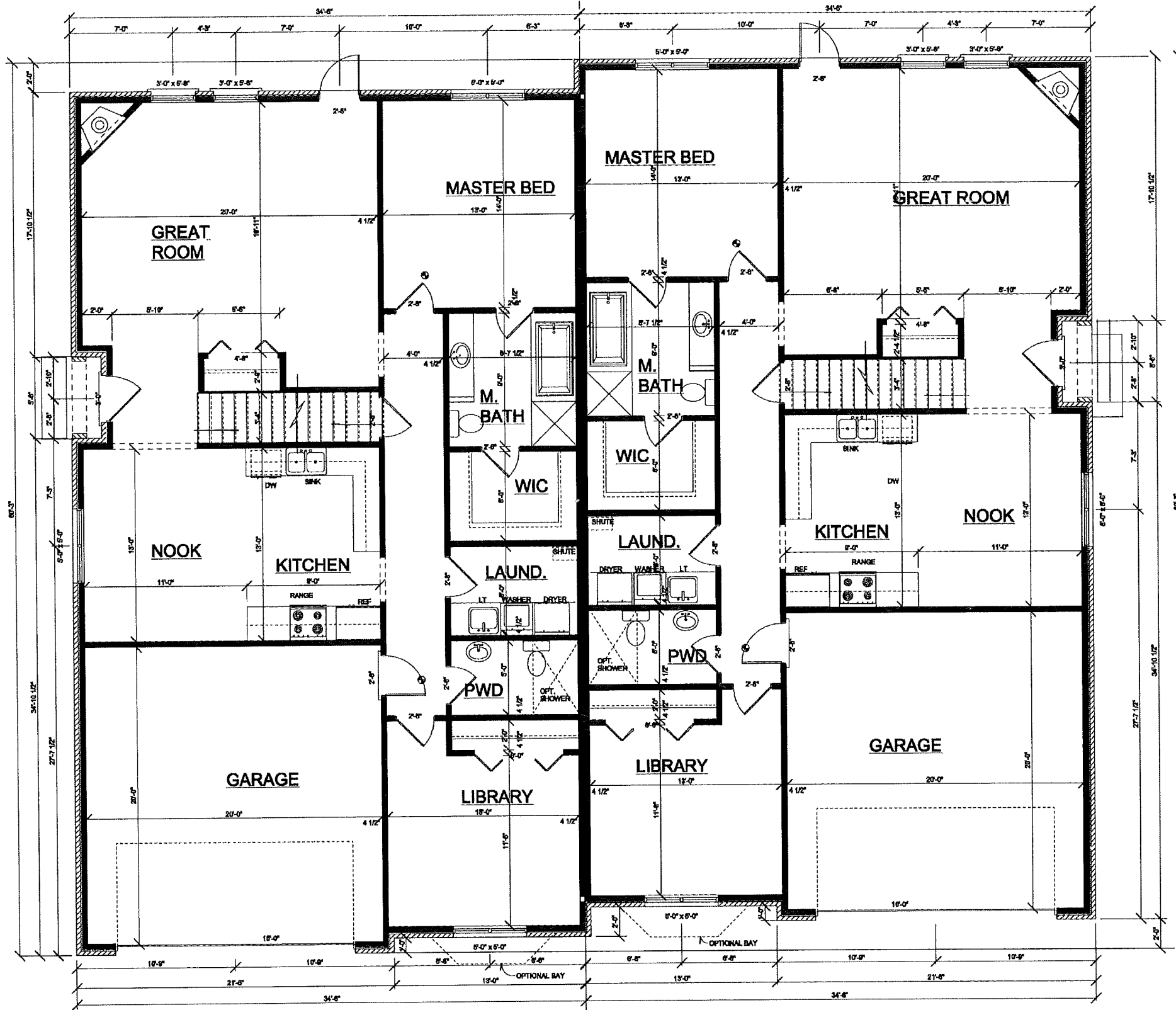
CHECKED BY: D.J.L.

FRG:

CHF:

SCALE: HOR 1" = 12'-0"

VER 1" = 12'-0"



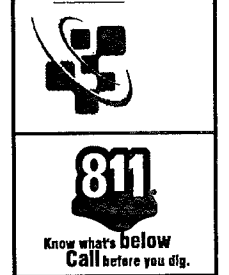
FIRST FLOOR UNIT A

CITY FILE #13-___, SECTION 9

NOT TO BE USED AS
CONSTRUCTION DRAWINGS

RESIDENTIAL
Single Condominium
Site Plan
COMMERCIAL
Site Planning
Site & Survey
Subsiding
Subsiding
A.L.A. Survey
Topographic Survey
Construction Staking

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
5111 W. Pontiac Trail, West, MI 48393
Phone: (248) 668-0700 Fax: (248) 668-0701



CLIENT: ANDOVER WOODS, LLC.
FLOOR PLAN
ANDOVER WOODS CONDOMINIUMS
TOWNSHIP: 3N RANGE: 11E
SECTION: 9 CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

REVISED	
9-2-14 PER CITY REVIEW	
DATE: 1-8-13	
DRAWN BY: D.J.L.	
CHECKED BY: D.J.L.	
FBK:	
CHP:	
SCALE HOR 1" =	FT.
VER 1" =	FT.
	18
	12-120

Seal:



Title:
Landscape Plan

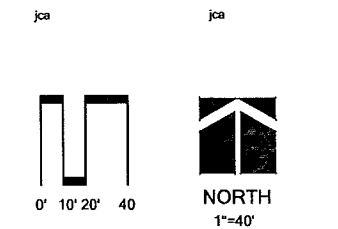
Project:
**Andover Woods
 Rochester Hills, Michigan**

Prepared for:
 Andover Woods LLC
 2617 Beacon Hill Drive
 Auburn Hills, Michigan 48326
 248.539.9333

Revision:	Issued:
Submission	January 15, 2013
Revised	June 20, 2013
Revised	August 19, 2013
Revised	December 19, 2013
Revised	May 27, 2014
Revised	September 30, 2014

Job Number:
 13-001

Drawn By: *jca* Checked By: *jca*

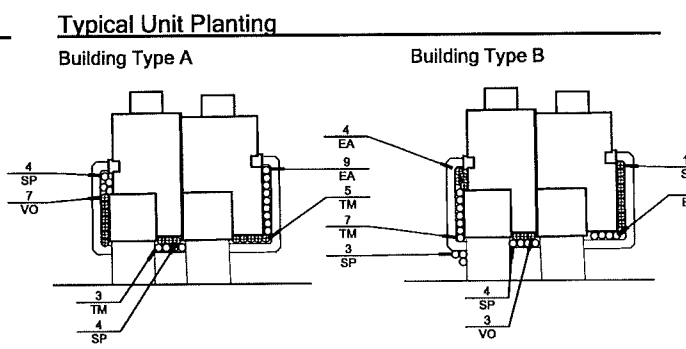
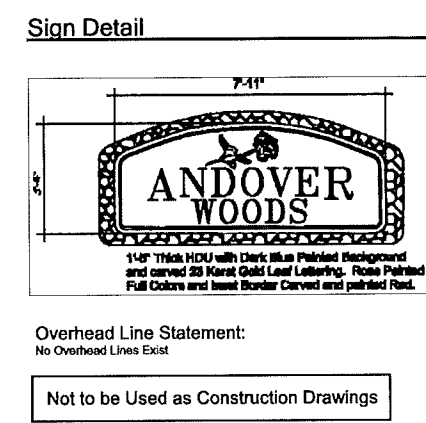


Sheet No. **L-1**



Landscape Summary

Street Trees - This Sheet	1,160 l.f.
Street Frontage	33 Trees (1,160 / 35)
Trees Required	33 Trees
Trees Provided	33 Trees
Tree Replacement	
Trees Removed	141 Trees
Credits Required	141 Credits
Credits Provided	142 Credits (71 Trees, 3.0")
(Total Both Sheets, See Sheet 11 for Calculations)	
Detention Pond	
North Pond	
Freeboard Length	634' (808.5')
Dec. Trees Required	8.8 Trees (1.5 per 100')
Dec. Trees Provided	9 Trees
Evergreen Trees Required	6.3 Trees (1 per 100')
Evergreen Trees Provided	6 Trees
Shrubs Required	25.4 Shrubs (4 per 100')
Shrubs Provided	25 Shrubs
South Pond	
Freeboard Length	1,153' (815.5')
Dec. Trees Required	17.3 Trees (1.5 per 100')
Dec. Trees Provided	17 Trees
Evergreen Trees Required	11.5 Trees (1 per 100')
Evergreen Trees Provided	12 Trees
Shrubs Required	46.1 Shrubs (4 per 100')
Shrubs Provided	46 Shrubs



Plant List

Sym.	Qty.	botanical name	common name	caliper	spacing	root	height	price	total	
GT	11	Gleditsia triacanthos var. Inermis	Honeylocust	3 0"	as shown	B&B		\$ 425.00	\$ 4,675.00	
LT	9	Liriodendron tulipifera	Tulip Tree	3 0"	as shown	B&B		\$ 425.00	\$ 3,825.00	
TC	12	Tilia cordata 'Greenspire'	Greenspire Linden	3 0"	as shown	B&B		\$ 425.00	\$ 5,100.00	
									Sub Total	\$ 13,600.00
Replacement Trees										
ASI	1	Acer saccharum	Sugar Maple	3 0"	as shown	B&B		\$ 425.00	\$ 425.00	
BNI	1	Betula nigra	River Birch	3 0"	as shown	B&B		\$ 425.00	\$ 425.00	
LTI	2	Liriodendron tulipifera	Tulip Tree	3 0"	as shown	B&B		\$ 425.00	\$ 850.00	
PH1	7	Picea pungens	Colorado Spruce		as shown	B&B	8'	\$ 300.00	\$ 2,100.00	
PS1	4	Pinus strobus	White Pine		as shown	B&B	8'	\$ 300.00	\$ 1,200.00	
									Sub Total	\$ 5,000.00
General Plantings										
AC	5	Ametanicher canadensis	Sawcuberry	2 0"	as shown	B&B		\$ 200.00	\$ 1,000.00	
AR	14	Acer rubrum	Red Maple	3 0"	as shown	B&B		\$ 425.00	\$ 5,950.00	
CS	51	Comus seneca	Red Osier Dogwood		as shown	B&B	30"-36"	\$ 50.00	\$ 2,550.00	
EA	117	Euroymus alia Compact	Compact Burning Bush		as shown	B&B	30"-36"	\$ 50.00	\$ 5,850.00	
LTO	5	Liriodendron tulipifera	Tulip Tree	3 0"	as shown	B&B		\$ 425.00	\$ 2,125.00	
TM	6	Picea glauca	White Spruce		as shown	B&B	8'	\$ 200.00	\$ 1,200.00	
PP	6	Picea pungens	Colorado Spruce		as shown	B&B	8'	\$ 300.00	\$ 1,800.00	
PS	6	Pinus strobus	White Pine		as shown	B&B	8'	\$ 300.00	\$ 1,800.00	
QB	7	Quercus bicolor	Swamp White Oak	3 0"	as shown	B&B		\$ 425.00	\$ 2,975.00	
SP	134	Spruce J. Anthony Watson	Anthony Watson Spruce		as shown	B&B	30"-36"	\$ 50.00	\$ 6,700.00	
TM	98	Taxus x media 'therifamii'	Devise Yew		as shown	B&B	30"-30"	\$ 50.00	\$ 4,900.00	
TD	3	Thuja occidentalis Dark Green Heavy	Dark Green Arborvitae		as shown	B&B	6'	\$ 200.00	\$ 600.00	
VD	35	Viburnum dentatum	Amowood Viburnum		as shown	B&B	30"-36"	\$ 50.00	\$ 1,750.00	
VO	73	Viburnum opulus 'Nanum'	European Cranberrybush		as shown	B&B	30"-36"	\$ 50.00	\$ 3,650.00	
									Sub Total	\$ 43,450.00

Seal: _____



Title:
Landscape Plan

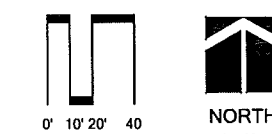
Project:
**Andover Woods
 Rochester Hills, Michigan**

Prepared for:
 Andover Woods LLC
 2617 Beacon Hill Drive
 Auburn Hills, Michigan 48326
 248.539.9333

Revision:	Issued:
Submission	January 15, 2013
Revised	June 20, 2013
Revised	August 19, 2013
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Revised	September 30, 2014

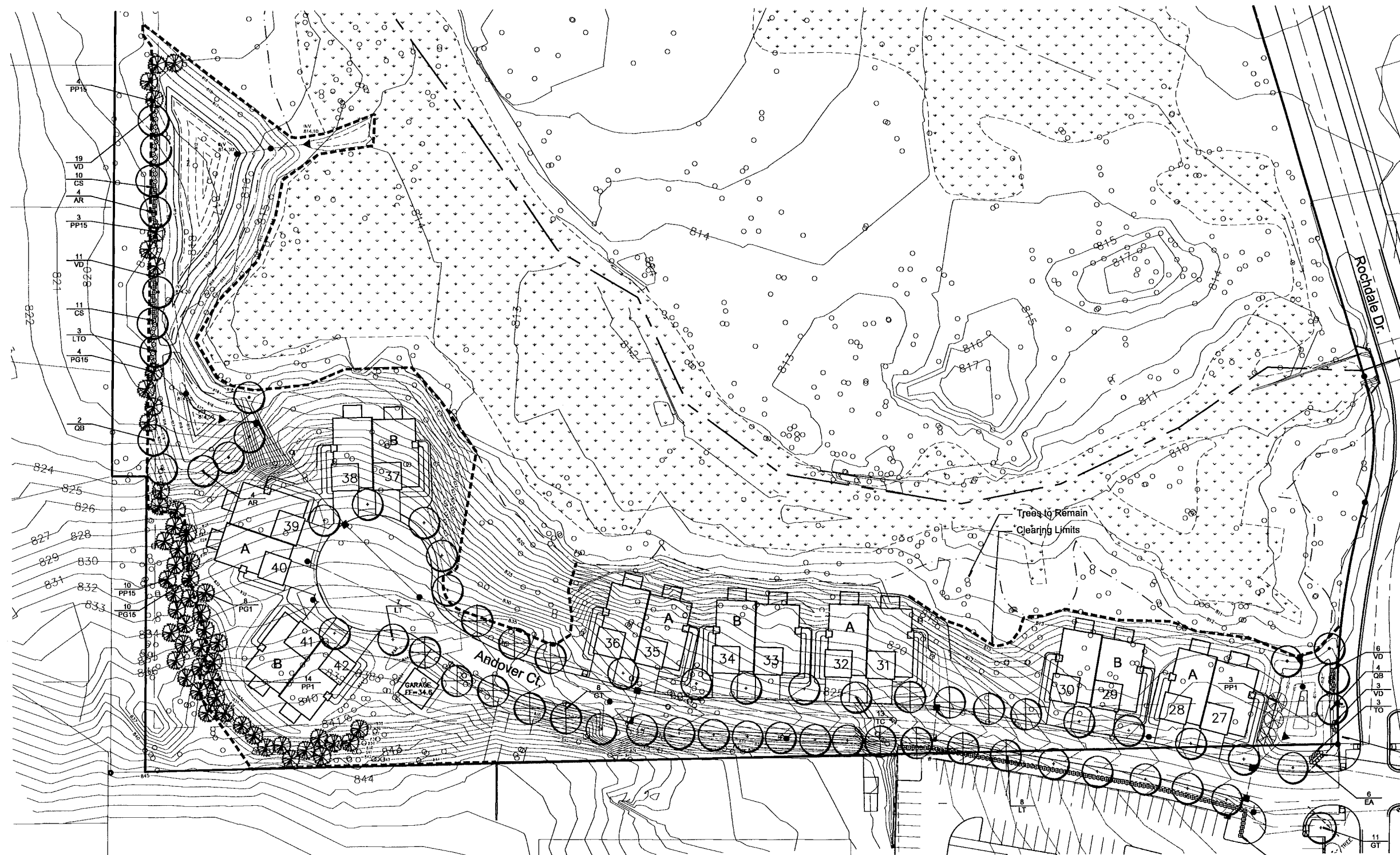
Job Number:
 13-001

Drawn By: jca Checked By: jca



Sheet No.

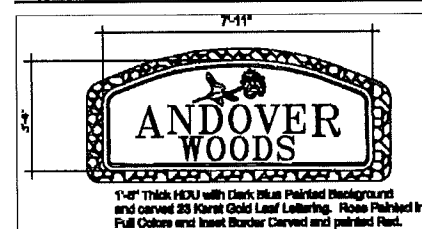
L-2



Street Tree Summary

Street Trees	1,642 L.F.
Street Frontage	47 Trees (1,642 / 35)
Trees Required	47 Trees
Trees Provided	
Detention Pond - Type A Buffer	
East Pond	
Freeboard Length	230' (812.5')
Dec. Trees Required	3.5 Trees (1.5 per 100')
Dec. Trees Provided	4 Trees
Evergreen Trees Required	2.3 Trees (1 per 100')
Evergreen Trees Provided	3 Trees
Shrubs Required	9.2 Shrubs (4 per 100')
Shrubs Provided	9 Shrubs
West Pond	
Freeboard Length	831' (818.0')
Dec. Trees Required	3.5 Trees (1.5 per 100')
Dec. Trees Provided	13 Trees
Evergreen Trees Required	8.3 Trees (1 per 100')
Evergreen Trees Provided	8 Trees
Shrubs Required	33.2 Shrubs (4 per 100')
Shrubs Provided	51 Shrubs

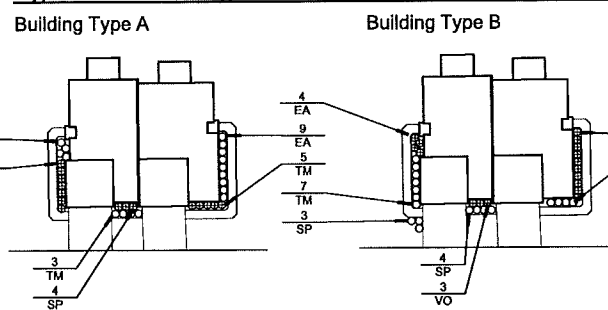
Sign Detail



Overhead Line Statement:
 No Overhead Lines Exist

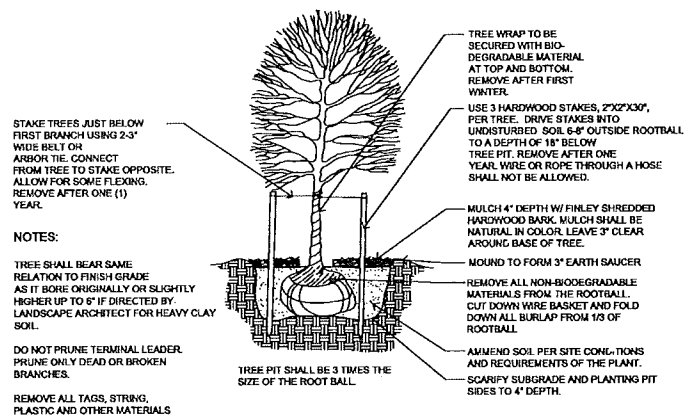
Not to be Used as Construction Drawings

Typical Unit Planting



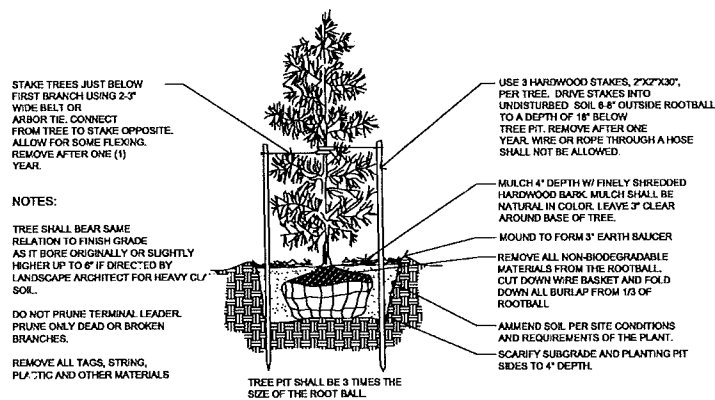
Plant List

Sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
Street Trees									
GT	18	Gladiolus inaequalis var. Inermis	Honeylocust	3 0"	as shown	B&B	8'	\$ 425.00	\$ 8,075.00
LT	15	Liriodendron tulipifera	Tulip Tree	3 0"	as shown	B&B	15'	\$ 425.00	\$ 6,375.00
TC	13	Tilia cordata 'Greenspire'	Greenspire Linden	3 0"	as shown	B&B	6'	\$ 425.00	\$ 5,525.00
									Sub Total
									\$ 19,975.00
Replacement Trees									
PGT	8	Picea glauca	White Spruce		as shown	B&B	8'	\$ 300.00	\$ 2,400.00
PGT	14	Picea glauca	White Spruce		as shown	B&B	15'	\$ 300.00	\$ 4,200.00
PP1	17	Picea pungens	Colorado Spruce		as shown	B&B	6'	\$ 300.00	\$ 5,100.00
PP15	17	Picea pungens	Colorado Spruce		as shown	B&B	15'	\$ 300.00	\$ 5,100.00
									Sub Total
									\$ 11,700.00
General Plantings									
AR	8	Acer rubrum	Red Maple	3 0"	as shown	B&B		\$ 425.00	\$ 3,400.00
CS	21	Cornus sericea	Red Osier Dogwood		as shown	B&B	30"-36"	\$ 50.00	\$ 1,050.00
EA	74	Eucymus alba 'Compact'	Compact Burning Bush		as shown	B&B	30"-36"	\$ 50.00	\$ 3,700.00
LTO	3	Liriodendron tulipifera	Tulip Tree	3 0"	as shown	B&B		\$ 425.00	\$ 1,275.00
QB	6	Quercus bicolor	Swamp White Oak	3 0"	as shown	B&B		\$ 425.00	\$ 2,550.00
SP	88	Spiraea J. 'Anthony Waterer'	Anthony Waterer Spiraea		as shown	B&B	30"-36"	\$ 50.00	\$ 4,400.00
TM	60	Taxus x media 'Densitomis'	Dense Yew		as shown	B&B	30"-36"	\$ 50.00	\$ 3,000.00
TO	94	Thuja occidentalis 'Dark Green Heavy'	Dark Green Arborvitae		as shown	B&B	6'	\$ 200.00	\$ 18,800.00
VD	39	Viburnum dentatum	Arrowwood Viburnum		as shown	B&B	30"-36"	\$ 50.00	\$ 1,950.00
VO	40	Viburnum opulus 'Nanum'	European Cranberrybush		as shown	B&B	30"-36"	\$ 50.00	\$ 2,000.00
									Sub Total
									\$ 42,125.00



DECIDUOUS TREE PLANTING DETAIL

NTS



EVERGREEN TREE PLANTING DETAIL

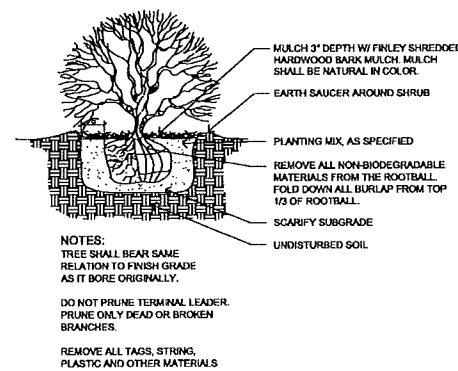
NTS

LANDSCAPE NOTES

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

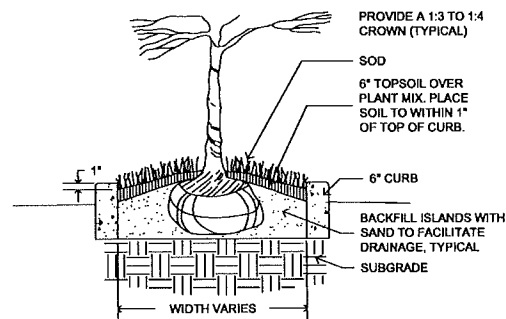
LANDSCAPE NOTES

- All Landscaped Areas Shall be Irrigated with an Automatic, Underground System. Watering Shall Occur Between the Hours of Midnight and 5am.
- Islands Shall be Sod.
- Owner Shall be Responsible for Replacing Damaged Plant Material Due to Utility Maintenance.
- Prior to the release of the Performance Bond, the City of Rochester Hills Forestry Division must inspect all landscape plantings including but not limited to existing trees, replacement trees, buffer plantings, and parking lot islands and the Forestry Division must inspect all right-of-ways to identify any plantings new or existing that pose a hazard to the safe use of the right-of-way. Forestry may require the developer to remove and possibly replace any such trees.
- All trees and shrubs must be planted at least 10' from the edge of a public roadway. Shade trees and shrubs must be planted at least 5' from the edge of a public walkway. Evergreen and ornamental trees must be planted at least 10' from any fire hydrant. Shade and evergreen trees must be planted at least 15' from the nearest overhead wire and at least 10' from the nearest underground utility.
- No tree or shrub may be planted within the triangular area formed at the intersection of any street right-of-way at a distance of 25' from their point of intersection. No tree or shrub may be planted in the triangular area formed at the intersection of any driveway with a public sidewalk at a distance along each line of 15' from their point of intersection.
- Prior approval is required to plant any tree or shrub in the public right-of-way.
- No substitutions or changes of location or plant types shall be made without the approval of the developer and the City of Rochester Hills Landscape Architect.
- The developer and/or the City of Rochester Hills Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans or specifications.
- Replacement trees may not be planted within the drip line of existing trees.
- Trees must be at least 10' from underground utilities and 15' from overhead utilities.
- Trees may not be planted within 4' of any property line.



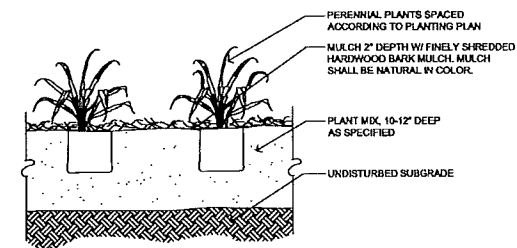
SHRUB PLANTING DETAIL

NTS



CURBED ISLAND DETAIL

NTS



PERENNIAL PLANTING DETAIL

NTS

Seal:



Title:

Landscape Details

Project:

Andover Woods
 Rochester Hills, Michigan

Prepared for:

Andover Woods LLC
 2617 Beacon Hill Drive
 Auburn Hills, Michigan 48326
 248.539.9333

Revision:

Issued:

Submission	January 15, 2013
Revised	June 20, 2013
Revised	August 17, 2013
Revised	December 19, 2013
Revised	May 27, 2014
Revised	September 30, 2014

Job Number:

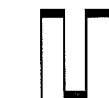
13-001

Drawn By:

jca

Checked By:

jca



NORTH

Sheet No.



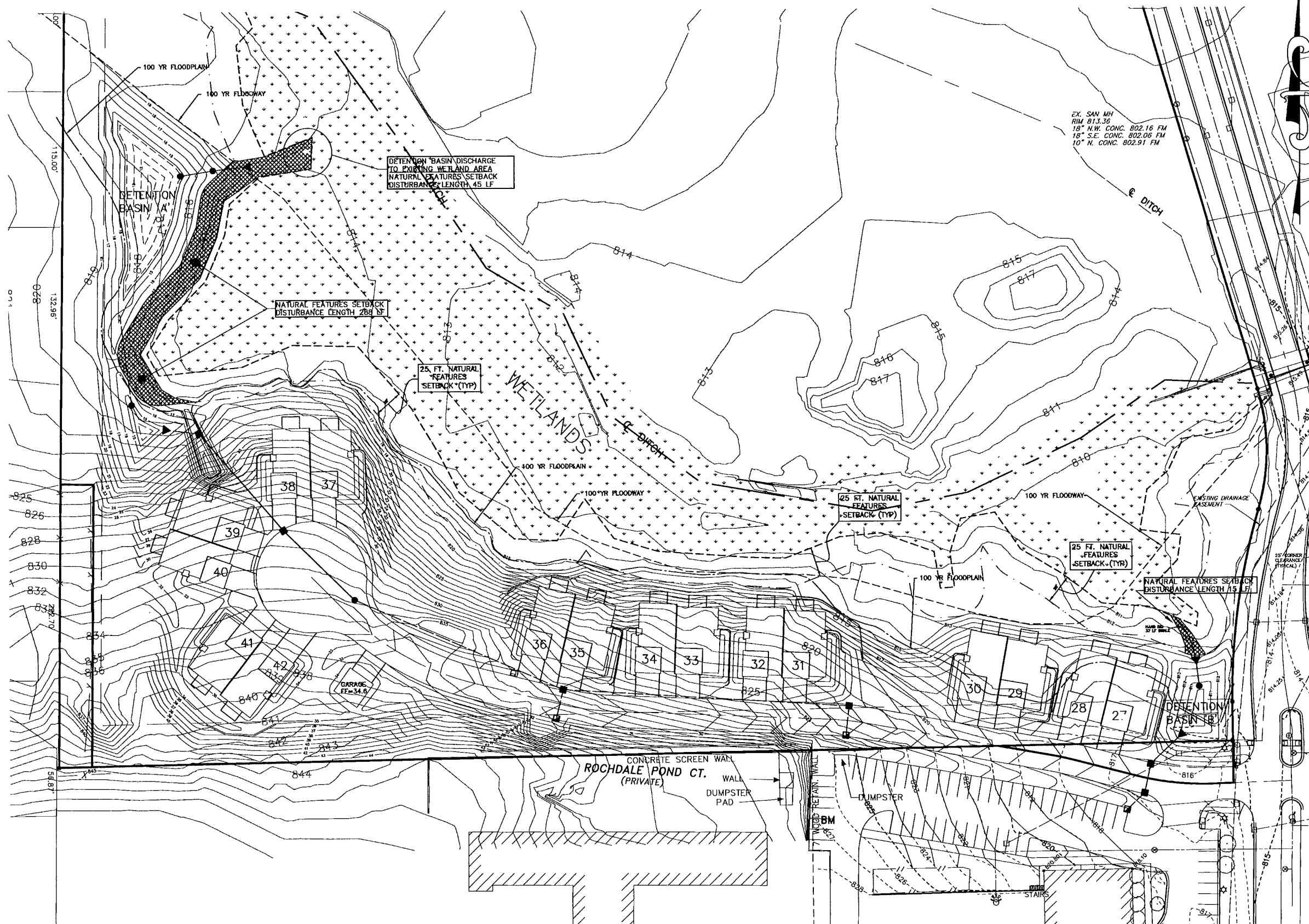
L-3

BENCHMARKS:

- 1) ARROW ON HYDRANT LOCATED APPROX. 420 FEET NORTH OF INTERSECTION OF WALTON & ROCHDALE IN THE CENTER LINE OF ROCHDALE DRIVE, IN BLVD. ISLAND. ELEV. = 818.90 N.A.V.D. 88 DATUM
- 2) DISC IN CONCRETE JOINT, EAST SIDE OF NORTH ROCHDALE DRIVE, CENTER LINE OF SARGENT CREEK, ON BRIDGE. ELEV. = 815.93 N.A.V.D. 88 DATUM
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LEGEND

- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
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- SET IRON
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- WALK OUT
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- PROP. SPOT ELEVATION
- PROP. CONTOUR



NOTES:

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- ANY AREAS OF TEMPORARY NATURAL FEATURES SETBACK IMPACTS ASSOCIATED WITH THE PROPOSED WORK WITHIN THE PROPOSED NATURAL FEATURES SETBACK AREAS MUST BE RESTORED WITH ORIGINAL SOILS OR EQUIVALENT SOILS AND SEEDED WITH A CITY APPROVED SEED MIX.
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WETLAND DELINEATION NOTES:

WETLAND DELINEATION PERFORMED JULY 28, 2013 BY BROOKS WILLIAMSON ASSOCIATES.

AS PART OF THE JULY 2013 DELINEATION, WETLANDS WERE FLAGGED BUT NOT SURVEYED NORTH OF THE SARGENT CREEK.

CITY FILE #98-025, SECTION 9
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 CIVIL ENGINEERS & LAND SURVEYORS

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CLIENT: ANDOVER WOODS, LLC.

WETLAND IMPACT PLAN - WEST

ANDOVER WOODS CONDOMINIUMS RANGE: 11E
 SECTION: 9 TOWNSHIP: 3N CITY OF ROCHESTER HILLS
 CALHOUN COUNTY MICHIGAN

REVISED

0-30-14 PER CITY REVIEW
 0-2-14 PER CITY REVIEW

DATE: 5-20-14

DRAWN BY: DJL
 CHECKED BY: DJL

FBK:
 CHF:

SCALE: HOR 1"=40 FT.
 VER 1"=4 FT.

23
 12-120

BENCHMARKS:

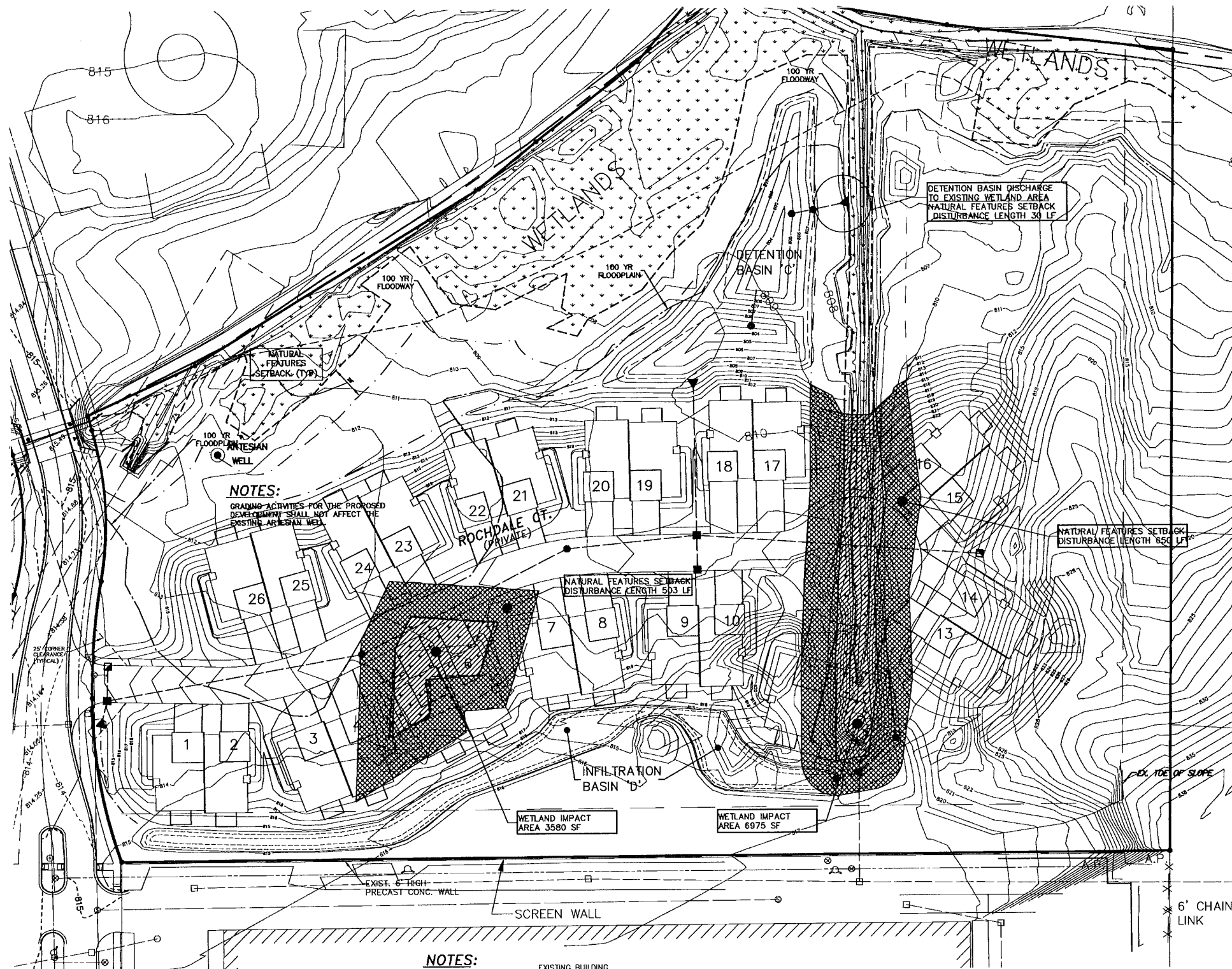
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CLIENT: ANDOVER WOODS, LLC.
WETLAND IMPACT PLAN - EAST
ANDOVER WOODS CONDOMINIUMS
TOWNSHIP: 3N RANGE: 11E
SECTION: 9 CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

REVISED
9-30-14 PER CITY REVIEW
9-2-14 PER CITY REVIEW
DATE: 5-20-14
DRAWN BY: D.J.L.
CHECKED BY: D.J.L.
CITY FILE #98-025, SECTION 9
SCALE: HOR 1"=40 FT. VER 1"=12 FT.
24
12-120

CITY FILE #98-025, SECTION 9

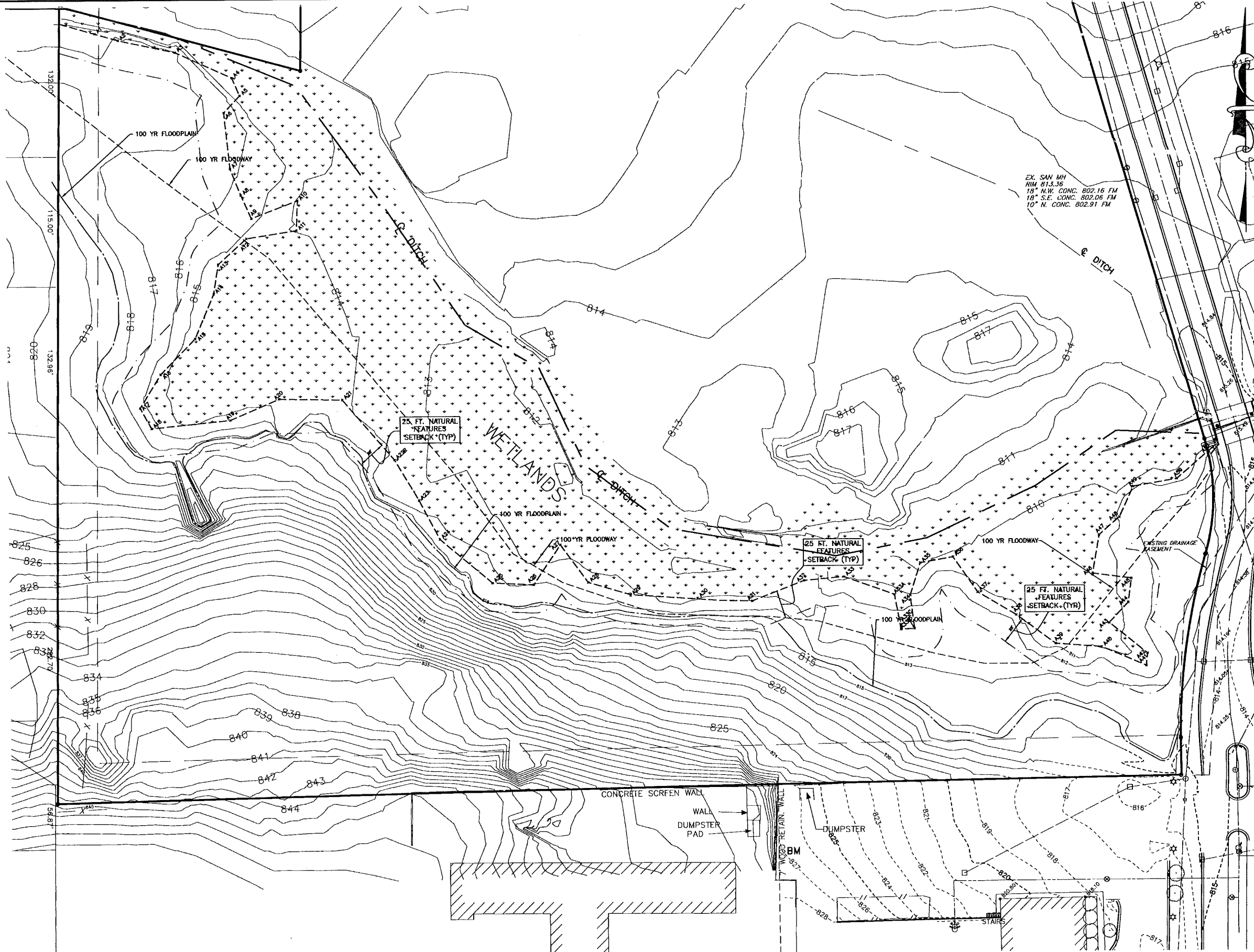
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CITY FILE #98-025, SECTION 9
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WETLAND DELINEATION PLAN - WEST
ANDOVER WOODS CONDOMINIUMS
TOWNSHIP: 3N RANGE: 11E
SECTION: 9 CITY OF ROCHESTER HILLS
OAKLAND COUNTY MICHIGAN

REVISED

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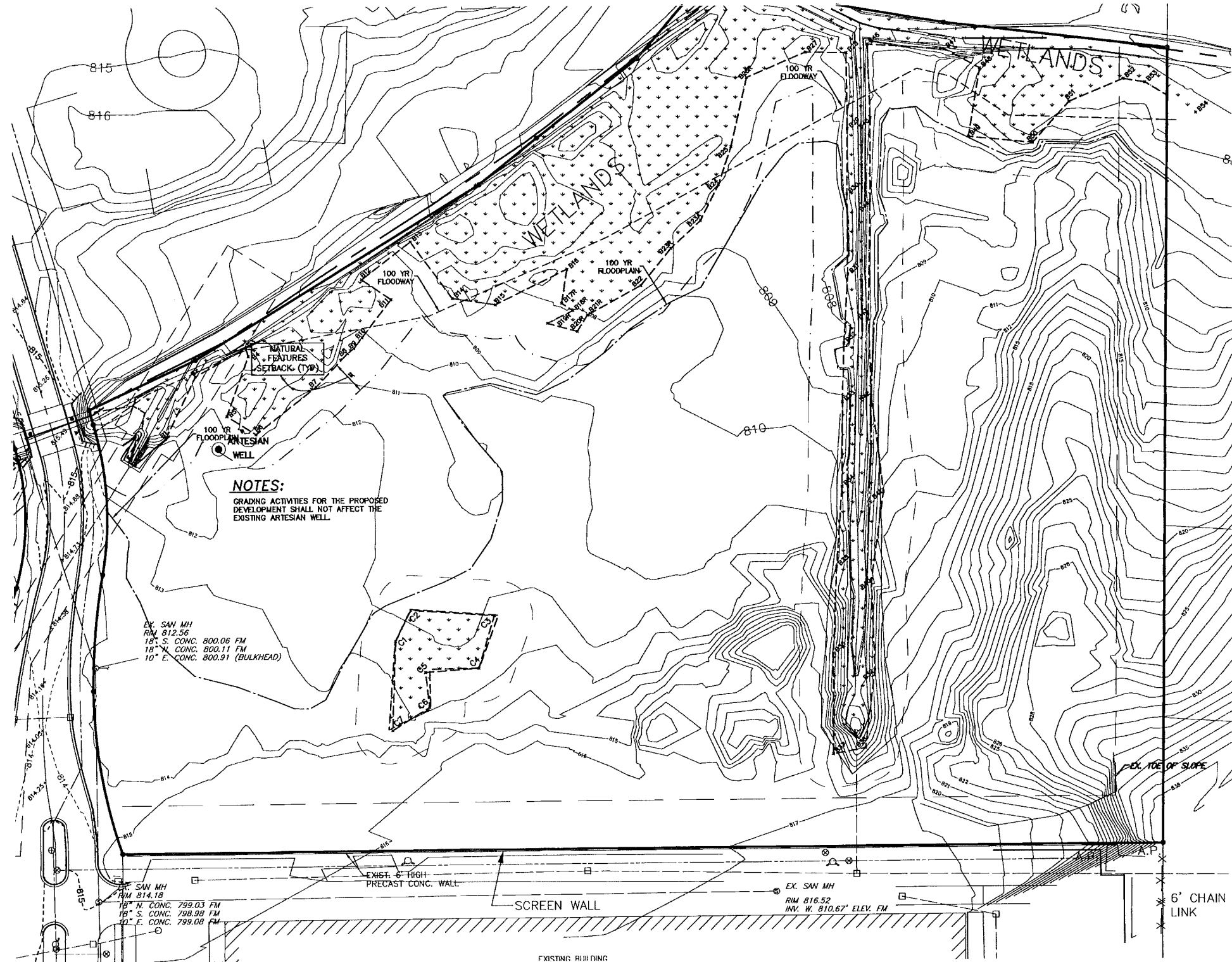
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EX. SAN MH
 RIM 812.56
 18" S. CONC. 800.06 FM
 18" N. CONC. 800.11 FM
 10" E. CONC. 800.91 (BULKHEAD)

EX. SAN MH
 RIM 814.18
 18" N. CONC. 799.03 FM
 18" S. CONC. 798.98 FM
 10" E. CONC. 799.08 FM

EX. SAN MH
 RIM 816.52
 INV. W. 810.67' ELEV. FM



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 SITE PLANNING
 SURVEYING & Mapping
 Infrastructure & Utility
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 ASIA SURVEY
 Aerial Photography
 51111 W. Pontiac Trail, Wixom, MI 48393
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