

PRELIMINARY SITE PLAN FOR BEACON HILL PARK BEACON HILL MEADOWS, THE SHOPPES AT BEACON HILL, BEACON HILL PARK TRAILHEAD NOVI, MICHIGAN, SECTION 12



APPLICANT:
IVANHOE MEADOWBROOK L.L.C.
6689 ORCHARD LAKE ROAD, STE. 314
WEST BLOOMFIELD, MI 48322
(248) 626-6114
CONTACT: GARY SHAPIRO

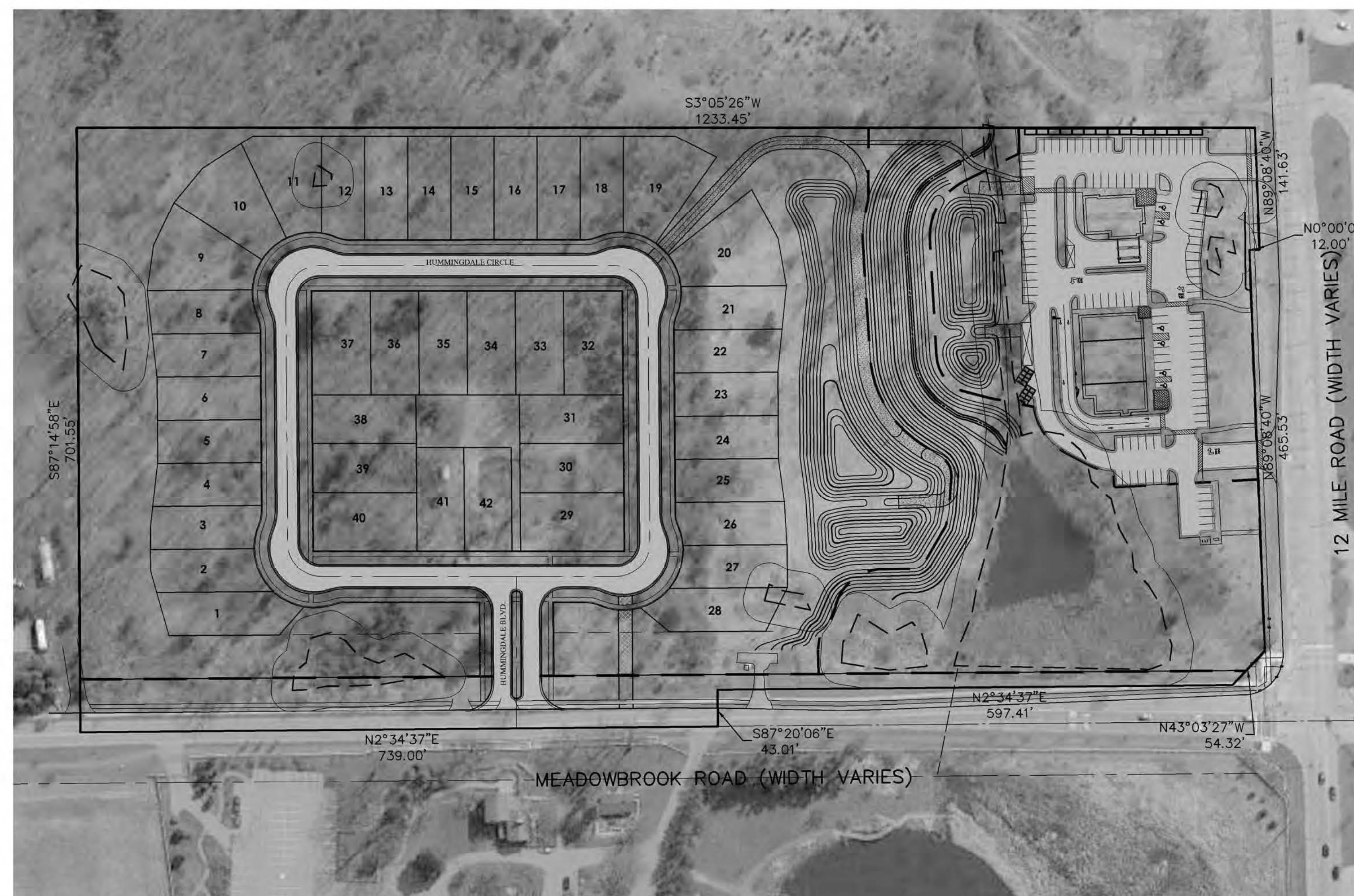
CIVIL ENGINEER:
ZEIMET-WOZNIAK & ASSOCIATES, INC.
55800 GRAND RIVER, SUITE 100
NEW HUDSON, MI 48165
(248) 437-5099
CONTACT: ANDY WOZNIAK

LANDSCAPE ARCHITECT:
FELINO A. PASCUAL & ASSOCIATES
24333 ORCHARD LAKE ROAD, SUITE G
FARMINGTON HILLS, MI 48336
(248) 557-5588
CONTACT: FELINO PASCUAL

WOODLAND/WETLAND CONSULTANT:
KING & MCGREGOR ENVIRONMENTAL, INC.
43050 FORD ROAD, SUITE 130
CANTON, MI 48187
(734) 534-0594
CONTACT: WOODY HELD

MEADOWS ARCHITECT:
TR DESIGN GROUP, LLC
6001 N. ADAMS ROAD, SUITE 202
BLOOMFIELD HILLS, MI 48304
(248) 792-3256
CONTACT: J.R. RUTHIG

SHOPPES ARCHITECT:
ROGVOY ARCHITECTS
32500 TELEGRAPH ROAD, SUITE 250
BINGHAM FARMS, MI 48025
(248) 540-7700
CONTACT: MARK DRANE



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NOTE: ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

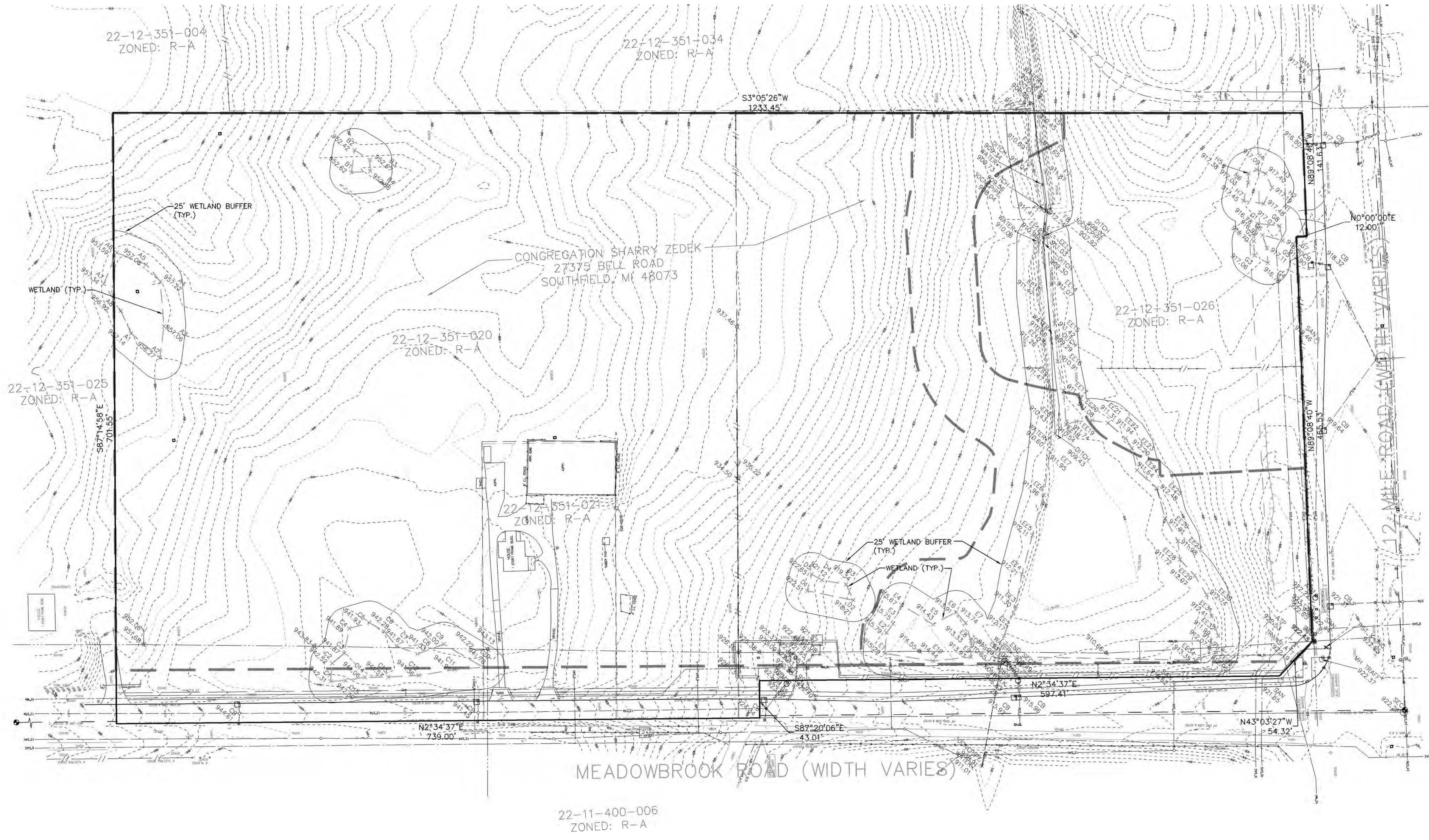
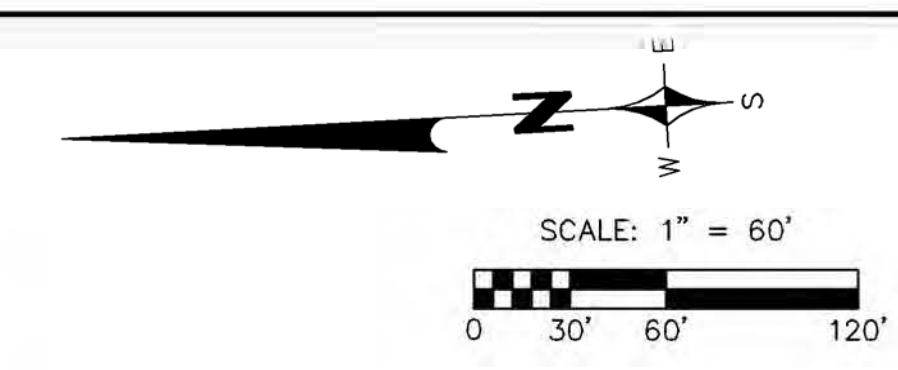
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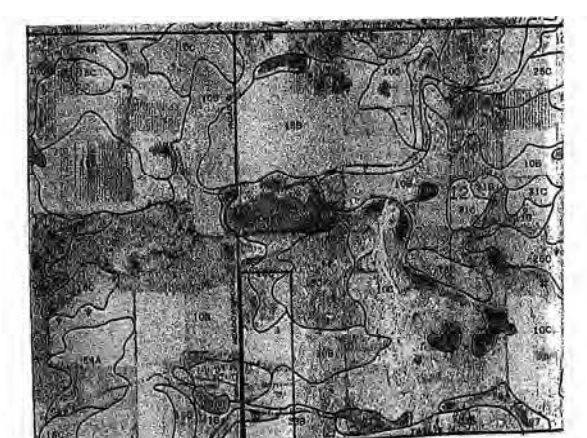
COVER SHEET
BEACON HILL PARK
NOVI, MICHIGAN, SECTION 12

DATE	1/11/16	SCALE	HOR: 1" = N/A VER: 1" = N/A
DESIGNED BY	SRB	JOB NO.	14151
DRAWN BY	SRB	SHEET	SP-1



- EXISTING LEGEND**
- MANHOLE
 - CATCH BASIN
 - ◇ INLET
 - CLEANOUT
 - △ END SECTION
 - ROOF DRAIN
 - ◇ GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - UTILITY POLE
 - GUY ANCHOR
 - LIGHT POLE
 - SIGN
 - TREE
 - TREE LINE
 - FENCE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - T/P TOP OF PAVEMENT
 - T/C TOP OF CURB
 - B/C BOTTOM OF CURB
 - +100.00 SPOT ELEVATION

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.



SOILS NOTE:
 PER THE USDA-SCS SOIL SURVEY OF OAKLAND COUNTY, MICHIGAN ISSUED MARCH 1982, THE SOILS FOR THIS SITE ARE CLASSIFIED AS:

- 10B: MARLETTE SANDY LOAM, 1-6% SLOPES
- 10C: MARLETTE SANDY LOAM, 6-12% SLOPES
- 13C: OSHTOMO-BOYER LOAMY SANDS, 6-12% SLOPES
- 15C: SPRINKS LOAMY SAND, 6-12% SLOPES
- 23B: SISSON FINE SANDY LOAM, 1-6% SLOPES
- 41B: AQUENTS, SANDY AND LOAMY, UNDULATING

LEGAL DESCRIPTIONS
50-22-12-351-020 T1N, R8E, SEC 12 PART OF W 1/2 OF SW 1/4 BEG AT PT ON W SEC LINE DIST N 02-51-00 E 765 FT FROM SW SEC COR, TH N 02-51-00 E 140 FT, TH S 87-09-00 E 315 FT, TH N 02-51-00 E 153 FT, TH N 87-09-00 W 315 FT, TH N 02-51-00 E 421 FT, TH S 87-09-00 E 697 FT, TH S 03-08-50 W 714 FT, TH N 87-09-00 W 693.30 FT TO BEG, 10.29 ACRES.

50-22-12-351-021 T1N, R8E, SEC 12 PART OF W 1/2 OF SW 1/4 BEG AT PT ON W SEC LINE DIST N 02-51-00 E 905 FT FROM SW SEC COR, TH N 02-51-00 E 153 FT, TH S 87-09-00 E 315 FT, TH S 02-51-00 W 153 FT, TH N 87-09-00 W 315 FT TO BEG, 1.11 ACRES.

50-22-12-351-026 T1N, R8E, SEC 12 PART OF SW 1/4 BEG AT PT DIST N 02-37-55 E 764.97 FT FROM SW SEC COR, TH S 87-16-30 E 695.04 FT, TH S 03-08-30 W 652.45 FT, TH N 89-08-40 W 141.64 FT, TH N 12 FT, TH N 89-08-40 W 465.53 FT, TH N 43-01-20 W 54.28 FT, TH N 02-37-55 E 597.41 FT, TH N 87-16-30 W 43 FT, TH N 02-37-55 E 24.97 FT TO BEG, 9.73 ACRES.

NOTE: NO BOUNDARY SURVEY WAS PERFORMED. BOUNDARY INFORMATION SHOWN AND LEGAL DESCRIPTIONS PER TAX RECORDS.

BENCHMARKS:

CITY BM #1231 'X' ON NORTH RIM OF GATE VALVE LOCATED 8 FEET NORTH OF DRIVE INTO PRV, 45 FEET EAST OF CENTERLINE OF MEADOWBROOK ROAD, 700 FEET NORTH OF CENTERLINE OF 12 MILE ROAD
 NORTHING: 365052.492
 EASTING: 13368796.58
 ELEV.: 922.9876

CITY BM #1312 'X' ON NORTH RIM OF GATE VALVE LOCATED 670 FEET EAST OF THE INTERSECTION OF MEADOWBROOK ROAD AND 12 MILE ROAD, SOUTH OF WEST BOUND 12 MILE ROAD INTERSECTION, 4 FEET SOUTH OF BACK OF CURB
 NORTHING: 364317.6108
 EASTING: 13369467.09
 ELEV.: 917.5438

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

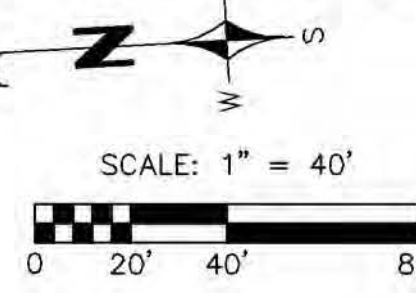
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MISS DIG SYSTEM, INC.
 THREE FULL WORKING DAYS BEFORE YOU DIG. CALL THE MISS DIG SYSTEM 1-800-482-7171

PROJECT SPONSOR:
 IVANHOE MEADOWBROOK L.L.C.
 6689 ORCHARD LAKE ROAD, STE. 314
 WEST BLOOMFIELD, MI 48322 (248) 626-6114

EXISTING CONDITIONS
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE	SCALE	HOR: 1" = 60'	VER: 1" = N/A
1/11/16			
DESIGNED BY	JOB NO.	14151	
SRB			
DRAWN BY	SHEET	SP-2	
SRB			



MEADOWBROOK ROAD (WIDTH VARIES)

- TREE SURVEY LEGEND:**
- TREE TO REMAIN
 - TREE TO BE REMOVED
 - TREE PROTECTION FENCE
- SEE SHEET SP-4 FOR TREE LIST.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

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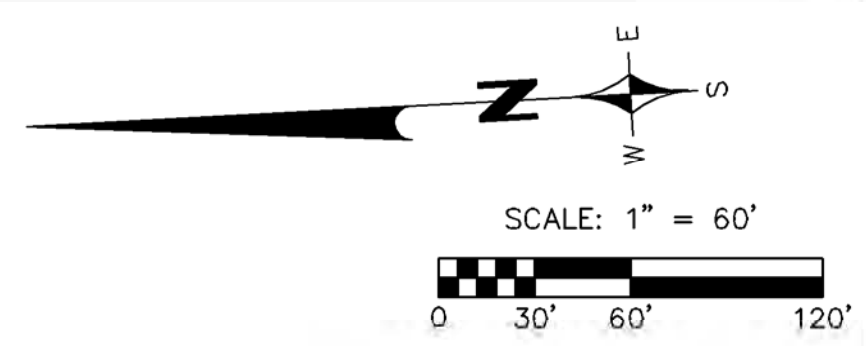
TREE SURVEY-TREE REMOVAL PLAN
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE: 1/11/16 SCALE: HOR: 1" = 40' VER: 1" = N/A
 DESIGNED BY: SRB JOB NO.: 14151
 DRAWN BY: SRB SHEET: SP-3

Beacon Hill Meadows

Tag	Scientific Name	Common Name	Diameter at Breast Height	Condition	Req. Rep.		
Column	Column 2	Column 3	Trunk 1	Trunk 2	Trunk 3	Trunk 4	Credit
46	Acer saccharinum	Silver Maple	21.7	Good	3		
52	Acer saccharinum	Silver Maple	22.9	Fair	3		
54	Ulmus americana	Siberian Elm	26.4	Poor	2		
55	Ailanthus altissima	Tree-of-Heaven	15.0	Poor	0		
56	Tilia americana	American Basswood	12.1	Good	3		
57	Pinus strobus	Eastern White Pine	14.7	Good	3		
60	Acer saccharinum	Silver Maple	24.0	Good	5		
62	Pinus communis	Common Pear	15.4	Fair	2		
69	Ulmus pumila	Siberian Elm	8.4	Fair	1		
70	Ulmus pumila	Siberian Elm	8.5	Fair	1		
81	Acer saccharinum	Silver Maple	16.7	Good	7		
82	Acer saccharinum	Silver Maple	15.2	Fair	1		
84	Tilia americana	American Basswood	17.7	Good	0		
85	Pinus strobus	Scots Pine	10.2	Good	2		
86	Tilia americana	American Basswood	11.2	Good	3		
87	Pinus strobus	Scots Pine	9.8	Fair	1		
89	Prunus serotina	Black Cherry	12.0	Good	2		
90	Pinus strobus	Scots Pine	12.3	Fair	2		
91	Prunus serotina	Black Cherry	9.6	Good	1		
92	Pinus strobus	Scots Pine	22.0	Good	3		
93	Pinus strobus	Scots Pine	14.0	Good	2		
94	Pinus strobus	Eastern White Pine	12.2	Good	2		
95	Pinus strobus	Scots Pine	13.7	Good	2		
97	Prunus serotina	Black Cherry	10.3	Poor	0		
98	Malus pumila	Apple Tree	8.7	Fair	1		
99	Pinus strobus	Scots Pine	12.0	Fair	2		
101	Ulmus pumila	Siberian Elm	26.5	Very Poor	0		
102	Pinus strobus	Scots Pine	14.5	Fair	2		
103	Pinus strobus	Scots Pine	13.5	Fair	2		
104	Pinus strobus	Scots Pine	15.6	Poor	0		
105	Pinus strobus	Scots Pine	11.2	Fair	2		
106	Pinus strobus	Scots Pine	12.6	Fair	0		
107	Juglans nigra	Black Walnut	15.5	Fair	2		
108	Pinus strobus	Scots Pine	12.8	Fair	2		
110	Pinus strobus	Scots Pine	11.9	Fair	2		
111	Pinus strobus	Scots Pine	11.5	Fair	2		
112	Ulmus americana	American Elm	9.0	Fair	1		
113	Juglans nigra	Black Walnut	10.9	Fair	1		
114	Ulmus americana	American Elm	11.7	Fair	2		
115	Acer negundo	Box-elder	10.4	Poor	0		
116	Ulmus americana	American Elm	9.0	Fair	1		
117	Acer negundo	Box-elder	8.7	Poor	0		
118	Juglans nigra	Black Walnut	9.2	Fair	1		
119	Ulmus americana	American Elm	10.0	Fair	1		
120	Juniperus virginiana	Eastern Red Cedar	8.4	Fair	1		
121	Pinus strobus	Scots Pine	8.4	Fair	1		
122	Pinus strobus	Scots Pine	12.3	Good	3		
123	Pinus strobus	Scots Pine	32.2	Fair	2		
124	Pinus strobus	Scots Pine	9.1	Fair	1		
125	Pinus strobus	Scots Pine	12.2	Fair	2		
127	Pinus strobus	Scots Pine	12.1	Fair	2		
128	Ulmus americana	American Elm	8.7	Fair	1		
129	Pinus strobus	Scots Pine	21.9	Poor	0		
130	Pinus strobus	Scots Pine	11.5	Poor	0		
131	Ulmus pumila	Siberian Elm	27.8	Fair	3		
132	Pinus strobus	Scots Pine	15.2	Fair	2		
133	Pinus strobus	Scots Pine	12.8	Fair	2		
134	Pinus strobus	Scots Pine	11.6	Good	2		
135	Ulmus americana	American Elm	8.4	Fair	1		
136	Pinus strobus	Scots Pine	10.3	Good	1		
137	Pinus strobus	Scots Pine	11.8	Good	2		
138	Pinus strobus	Scots Pine	12.4	Good	2		
139	Pinus strobus	Scots Pine	8.6	Good	1		
140	Pinus strobus	Scots Pine	9.4	Good	1		
141	Pinus strobus	Scots Pine	11.3	Good	2		
142	Acer saccharinum	Silver Maple	11.3	Good	2		
143	Pinus strobus	Scots Pine	11.3	Good	2		
144	Pinus strobus	Scots Pine	9.7	Fair	1		
145	Pinus strobus	Scots Pine	9.8	Fair	1		
146	Pinus strobus	Scots Pine	10.2	Fair	1		
147	Pinus strobus	Scots Pine	9.6	Fair	1		
148	Pinus strobus	Scots Pine	11.2	Fair	2		
149	Pinus strobus	Scots Pine	12.3	Fair	2		
150	Pinus strobus	Scots Pine	13.6	Poor	0		
152	Pinus strobus	Scots Pine	11.2	Fair	2		
153	Pinus strobus	Scots Pine	11.6	Fair	2		
154	Pinus strobus	Scots Pine	9.8	Fair	1		
159	Pinus strobus	Scots Pine	11.4	Fair	2		
162	Pinus strobus	Scots Pine	9.4	Fair	1		
163	Malus pumila	Apple Tree	8.5	Good	3		
165	Ulmus rubra	Red Elm	11.5	Fair	2		
166	Juglans nigra	Black Walnut	19.3	Good	2		
167	Juglans nigra	Black Walnut	29.8	Good	4		
168	Juglans nigra	Black Walnut	25.4	Fair	3		
170	Tilia americana	American Basswood	38.0	Good	4		
171	Juglans nigra	Black Walnut	27.3	Good	3		
172	Juglans nigra	Black Walnut	11.7	Good	2		
173	Juglans nigra	Black Walnut	9.1	Good	1		
174	Juglans nigra	Black Walnut	15.5	Good	2		
175	Tilia americana	American Basswood	11.3	Good	2		
176	Tilia americana	American Basswood	8.8	Fair	1		
177	Juglans nigra	Black Walnut	14.2	Good	2		
178	Tilia americana	American Basswood	15.0	Good	3		
179	Tilia americana	American Basswood	14.8	Fair	3		
180	Juglans nigra	Black Walnut	9.4	Good	1		
182	Tilia americana	American Basswood	12.8	Good	2		
183	Tilia americana	American Basswood	12.6	Good	2		
185	Juglans nigra	Black Walnut	16.7	Good	2		
186	Tilia americana	American Basswood	9.2	Fair	1		
187	Tilia americana	American Basswood	22.5	Good	0		
188	Tilia americana	American Basswood	12.0	Good	3		
189	Tilia americana	American Basswood	16.7	Good	6		
190	Juglans nigra	Black Walnut	14.0	Good	2		
191	Tilia americana	American Basswood	8.7	Fair	1		
192	Tilia americana	American Basswood	16.1	Good	4		
193	Ulmus americana	American Elm	10.0	Good	1		
195	Pinus strobus	Scots Pine	10.1	Fair	1		
198	Tilia americana	American Basswood	11.5	Good	2		
199	Prunus serotina	Black Cherry	10.5	Fair	0		
200	Pinus strobus	Scots Pine	12.6	Fair	2		

201	Pinus sylvestris	Scots Pine	12.0	Fair	2		
205	Pinus strobus	Scots Pine	12.2	Fair	1		
204	Pinus strobus	Black Cherry	8.3	Poor	0		
207	Pinus strobus	Scots Pine	11.2	Fair	2		
210	Pinus strobus	Scots Pine	12.8	Fair	2		
211	Pinus strobus	Scots Pine	9.3	Fair	1		
212	Pinus strobus	Scots Pine	14.0	Fair	2		
213	Pinus strobus	Scots Pine	11.8	Fair	2		
214	Pinus strobus	Scots Pine	9.4	Fair	1		
215	Tilia americana	American Basswood	14.0	Good	2		
216	Tilia americana	American Basswood	9.5	Good	1		
217	Tilia americana	American Basswood	12.0	Good	2		
218	Tilia americana	American Basswood	13.1	Good	1		
219	Tilia americana	American Basswood	13.7	Good	2		
220	Tilia americana	American Basswood	12.7	Good	2		
221	Tilia americana	American Basswood	9.2	Good	1		
222	Pinus strobus	Black Cherry	8.4	Good	1		
223	Pinus strobus	Black Cherry	9.5	Good	1		
224	Pinus strobus	American Elm	8.5	Good	1		
225	Tilia americana	American Elm	18.7	Fair	1		
226	Tilia americana	American Elm	8.5	Fair	1		
227	Tilia americana	American Elm	9.4	Good	1		
228	Tilia americana	American Elm	13.1	Good	2		
229	Tilia americana	American Elm	10.3	Good	1		
230	Tilia americana	American Elm	8.9	Good	1		
231	Tilia americana	American Elm	13.5	Good	1		
232	Tilia americana	American Elm	8.8	Good	1		
233	Tilia americana	American Elm	10.5	Good	3		
234	Tilia americana	American Elm	10.3	Good	1		
235	Tilia americana	American Elm	12.6	Good	2		
236	Tilia americana	American Elm	9.0	Good	1		
237	Tilia americana	American Elm	12.4	Good	3		
238	Tilia americana	American Elm	11.0	Good	2		
239	Tilia americana	American Elm	12.0	Good	3		
240	Tilia americana	American Elm	12.3	Fair	2		
241	Tilia americana	American Elm	16.7	Fair	2		
242	Tilia americana	American Elm	12.0	Fair	2		
243	Tilia americana	American Elm	13.3	Good	1		
244	Tilia americana	American Elm	12.8	Good	1		
245	Tilia americana	American Elm	13.5	Good	1		
246	Tilia americana	American Elm	14.0	Good	2		
247	Tilia americana	American Elm	17.2	Good	2		
248	Tilia americana	American Elm	15.0	Good	2		
249	Tilia americana	American Elm	14.2	Good	2		
250	Tilia americana	American Elm	13.2	Good	2		
251	Tilia americana	American Elm	13.0	Good	2		
252	Tilia americana	American Elm	12.8	Good	2		
253	Tilia americana	American Elm	14.0	Good	2		
254	Tilia americana	American Elm	17.2	Good	2		
255	Tilia americana	American Elm	15.0	Good	2		
256	Tilia americana	American Elm	13.2	Good	2		
257	Tilia americana	American Elm	13.0	Good	2		
259	Tilia americana	American Elm	14.4	Poor	0		
260	Tilia americana	American Elm	12.8	Good	1		
261	Prunus virginiana	Black Cherry	12.6	Fair	0		
262	Tilia americana	American Elm	11.3	Good	0		
263	Tilia americana	American Elm	9.6	Good	1		
264	Tilia americana	American Elm	11.3	Good	2		
265	Tilia americana	American Elm	12.9	Good	2		
266	Tilia americana	American Elm	11.0	Good	2		
267	Tilia americana	American Elm	15.0	Good	2		
268	Tilia americana	American Elm	11.9	Good	2		
269	Tilia americana	American Elm	28.2	Good	0		
270	Tilia americana	American Elm	11.7	Good	0		
271	Tilia americana	American Elm	10.9	Good	1		
272	Tilia americana	American Elm	12.8	Good	1		
273	Tilia americana	American Elm	13.2	Good	0		
274	Tilia americana	American Elm	17.2	Good	10.1		
275	Tilia americana	American Elm	14.7	Fair	0		
276	Tilia americana	American Elm	11.3	Fair	0		
277	Tilia americana	American Elm	18.0	Fair	0		
278	Tilia americana	American Elm	16.3	Fair	0		
279	Tilia americana	American Elm	17.2	Good	0		
280	Tilia americana	American Elm	14.9	Fair	0		
281	Tilia americana	American Elm	14.7	Fair	0		
282	Tilia americana	American Elm	12.3	Fair	0		
283	Tilia americana	American Elm	13.6	Good	0		
284	Tilia americana	American Elm	28.3	Good	0		
285	Tilia americana	American Elm	12.8	Good	0		
286	Tilia americana	American Elm	11.6	Fair	0		
287	Tilia americana	American Elm	11.6	Good	0		
288	Tilia americana	American Elm	8.6	Good	0		
289	Tilia americana	American Elm	11.3	Good	0		
290	Tilia americana	American Elm	11.6	Good	0		
291	Tilia americana	American Elm	13.3	Good	0		
292	Tilia americana	American Elm	15.1	Fair	0		
293	Tilia americana	American Elm	9.8	Good	1		
294	Juniperus virginiana	Eastern Red Cedar	9.6	Good	1		
295	Ulmus rubra	Red Elm	13.4	Good	2		
296	Tilia americana	American Elm	8.2	Good	1		
297	Tilia americana	American Elm	15.0	Fair	2		
298	Juniperus virginiana	Eastern Red Cedar	8.2	Fair	1		
299	Tilia americana	American Elm	8.6	Fair	1		
300	Tilia americana	American Elm	8.6	Fair	1		
301	Tilia americana	American Elm	12.7	Good	10		
302	Juglans nigra	Black Walnut	32.9	Poor	0		
303	Tilia americana	American Elm	13.0	Good	0		
304	Tilia americana	American Elm	10.2	Good	0		
305	Ulmus rubra	Red Elm	11.3	Fair	0		
306	Tilia americana	American Elm	12.2	Fair	0		
307	Ulmus americana	American Elm	9.3	Fair	1		
308	A						



PRO

RESIDENTIAL MEADOWS	42 UNITS
COMMERCIAL SHOPPES	12,000-22,000 S.F. (SUBJECT TO FINAL TENANT MIX)

PHASING

RESIDENTIAL MEADOWS	13.60 ACRES
PARK TRAILHEAD	3.28 ACRES
COMMERCIAL SHOPPES	16.88 ACRES
COMMERCIAL SHOPPES	3.05 ACRES

- PHASE 1**
- MEADOWS - COMPLETE CONSTRUCTION INCLUDING MASS GRADING, UNDERGROUND UTILITY INSTALLATION, PAVING, LANDSCAPING AND TREE REPLACEMENT.
 - PARK TRAILHEAD - CONSTRUCTION INCLUDING MASS GRADING, STREAM RELOCATION, WETLAND RESTORATION, LANDSCAPING AND TREE REPLACEMENT.
 - SHOPPES - MASS GRADING, INCLUDING SEDIMENTATION AND DETENTION BASINS, STORM SEWER WITHIN THE BASINS AND SITE STABILIZATION.

- PHASE 2**
- SHOPPES - BALANCE OF CONSTRUCTION INCLUDING UNDERGROUND UTILITY INSTALLATION, PAVING, LANDSCAPING, TREE REPLACEMENT AND SITE LIGHTING.
 - PARK TRAILHEAD - BALANCE OF CONSTRUCTION INCLUDING PAVING, BENCH AND BIKERACK INSTALLATION AND RESTORATION OF THE DISTURBED AREAS.

PRO AND PHASING PLAN

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

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 WEST BLOOMFIELD, MI 48322 (248) 626-6114

PRO AND PHASING PLAN
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE	1/11/16	SCALE	HOR: 1" = 60'
DESIGNED BY	SRB	VER:	1" = N/A
JOB NO.	14151		
DRAWN BY	SRB	SHEET	SP-5



client:
IVANHOE
MEADOWBROOK
LLC
 6689 Orchard Lake Road,
 Suite 314
 West Bloomfield, Michigan
 48332
 ph. (248) 626-6114

project:
Beacon Hill
Park
 A planned Single Family
 and Neighborhood
 Commercial Retail

project location:
 City of Novi, MI
 12-Mile Road &
 Meadowbrook Road

sheet title:
 site plan

job no./issue/revision date:
 LS15.010.06 SPA 6-26-2015
 LS16.008.01 PSP 1-11-2016
 LS16.008.04 PSP 4-13-2016

drawn by:
 JP, KH
 checked by:
 FP
 date:
 1-4-2016

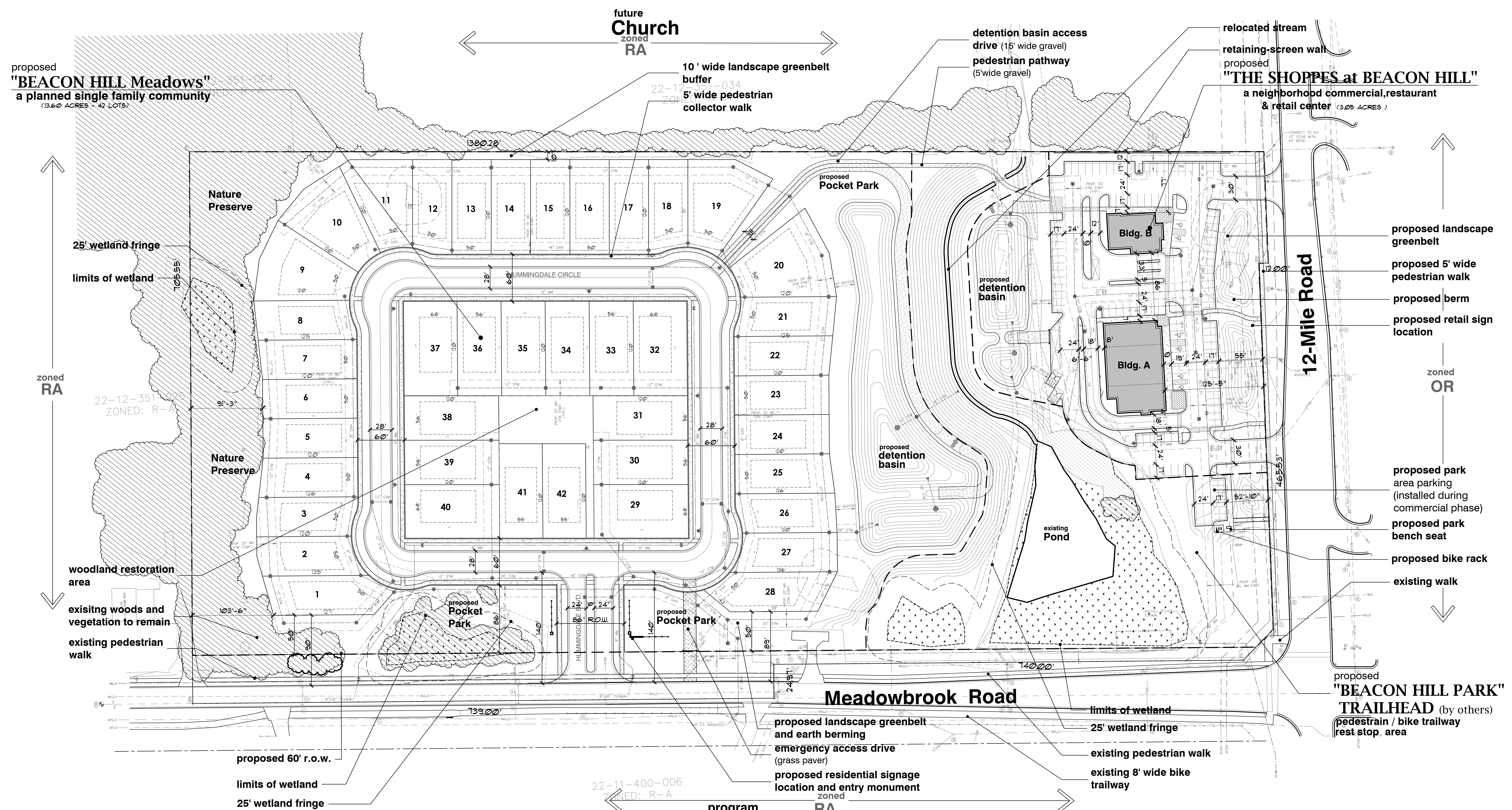
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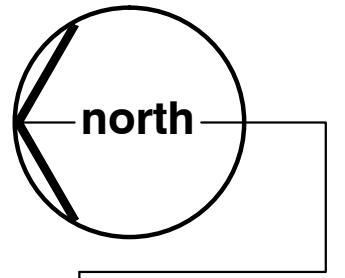
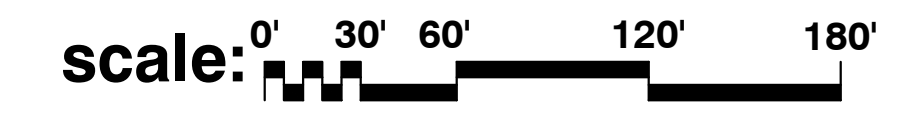
The location and elevations of existing
 underground utilities as shown on this
 drawing are only approximate. no guarantee
 is either expressed or implied as to the
 completeness of accuracy; contractor shall be
 exclusively responsible for determining the
 exact location and elevation prior to the start
 of construction

project no:
LS16.008.01

sheet no:
SP-6

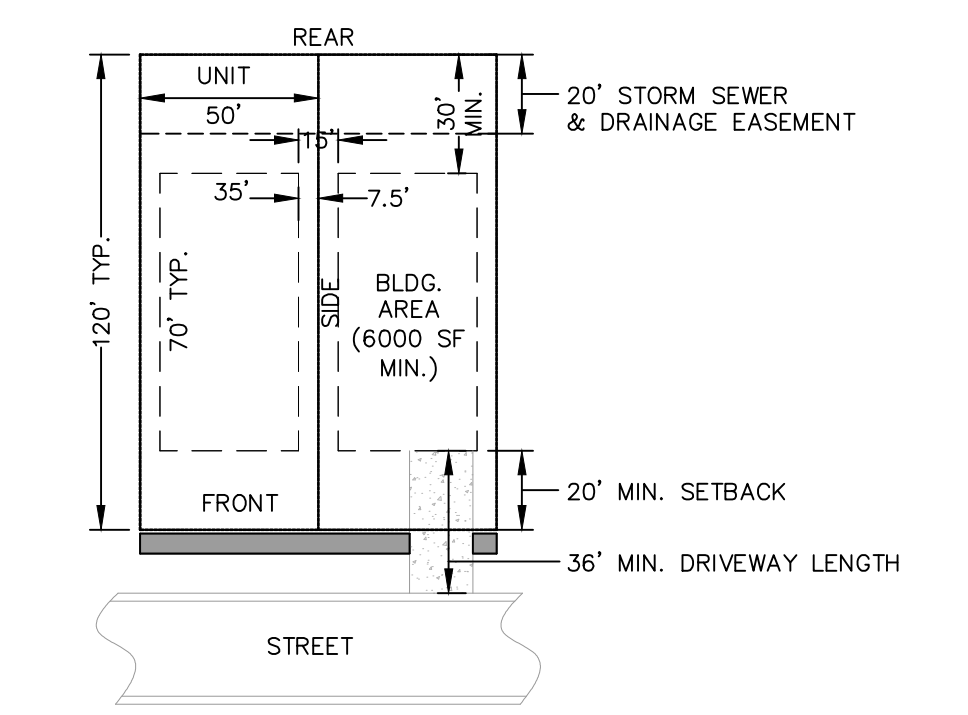


site plan for:
"Beacon Hill Park"
 City of Novi, Michigan

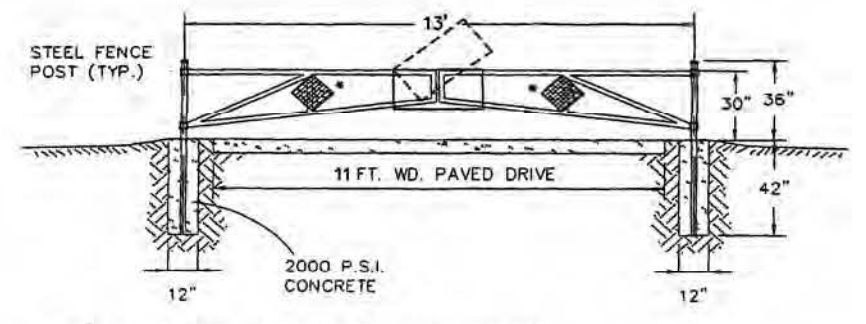


program RA	
TOTAL ACRES OF SITE GROSS	2113 ±
ACRES OF PROPOSED "THE SHOPPES AT BEACON HILL"	3.05
POTENTIAL BUILDING AREA	11,550 S.F.
RETAIL AREA	3,100 S.F.
BANK AREA	3,250 S.F.
RESTAURANT AREA	4,600 S.F.
TOTAL NO. OF PARKING REQUIRED FOR "THE SHOPPES AT BEACON HILL"	109
RETAIL PARKING	19 SPACES
(1-SPACE / 700 SF. = 3,100 / 700 = 18.5 SPACES)	
BANK PARKING	22 SPACES
(1-SPACE / 150 SF. = 3,250 / 150 = 21.67 SPACES)	
RESTAURANT PARKING	68 SPACES
RESTAURANT "A-1" PARKING	32 SPACES
(48-SEATS / 2-24-SPACES = 10 EMPLOYEE/2-15-SPACES = 100 SFT. WAITING AREA / 15-9.33-SPACES = 32.33 SPACES TOTAL)	
RESTAURANT "A-3" PARKING	36 SPACES
(86-SEATS / 2-28-SPACES = 10 EMPLOYEE/2-15-SPACES = 100 SFT. WAITING AREA / 15-9.33-SPACES = 32.33 SPACES TOTAL)	
TOTAL NO. OF PARKING PROVIDED FOR "THE SHOPPES AT BEACON HILL"	110

BEACON HILL PARK TRAILHEAD PARKING (INSTALLED DURING COMMERCIAL PHASE)	6 SPACES
ACRES OF "BEACON HILL MEADOWS" SITE AREA	13.6 ±
TOTAL NO. OF LOTS	42
TYP. LOT SIZE	50' X 120'
MIN. LOTS WIDTH	50'
TYP. CORNER LOT WIDTH	63'
FRONT YARD SETBACK	20'
SIDE YARD SETBACK	1.5/1.5'
REAR YARD SETBACK	30'
DENSITY PER ACRE (MEADOWS)	3.09 ±
DENSITY PER ACRE (MEADOWS & PARK)	2.49 ±
TOTAL ACRES OF ROW, DEDICATED	124 ±
TOTAL ACRES OF BEACON HILL PARK TRAILHEAD AREA	
ACRES OF BEACON HILL PARK TRAILHEAD AREA	3.28 ± 8.8% (42%)
ACRES OF OPEN SPACE IN BEACON HILL MEADOWS	4.54 ±
ACRES OF OPEN SPACE IN THE SHOPPES AT BEACON HILL	.98 ±



typ. unit layout
 NO SCALE

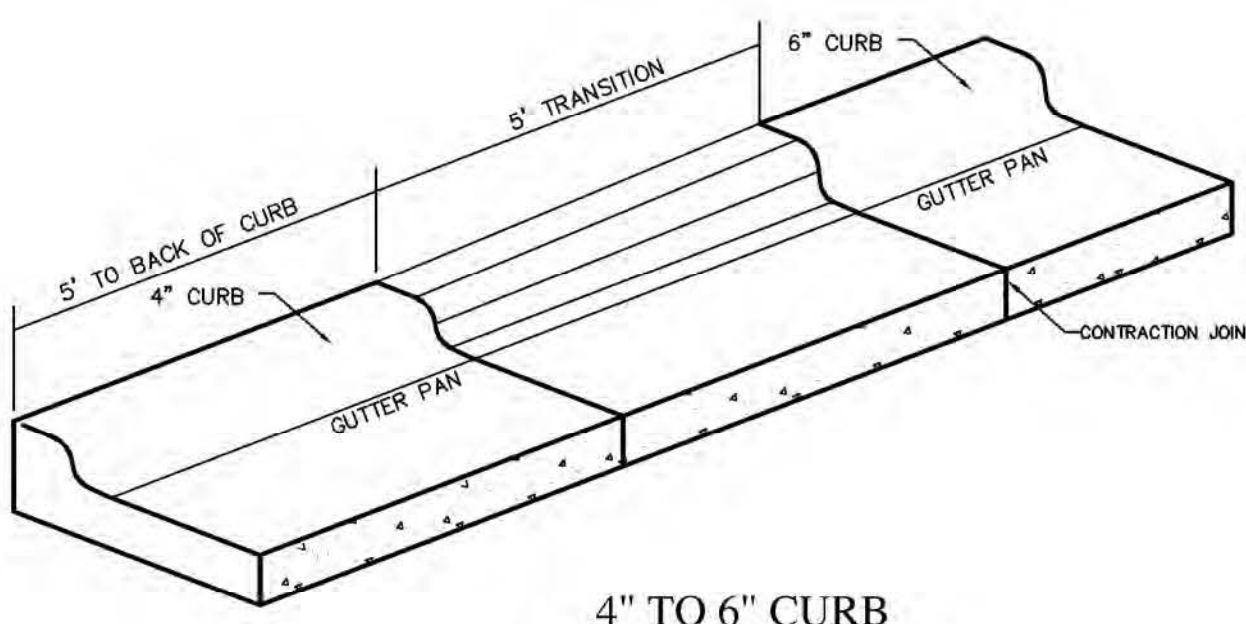


AT EACH LOCATION, 2'-12" X 12" RED REFLECTORIZED DIAMOND PANELS, PLACED BACK TO BACK.

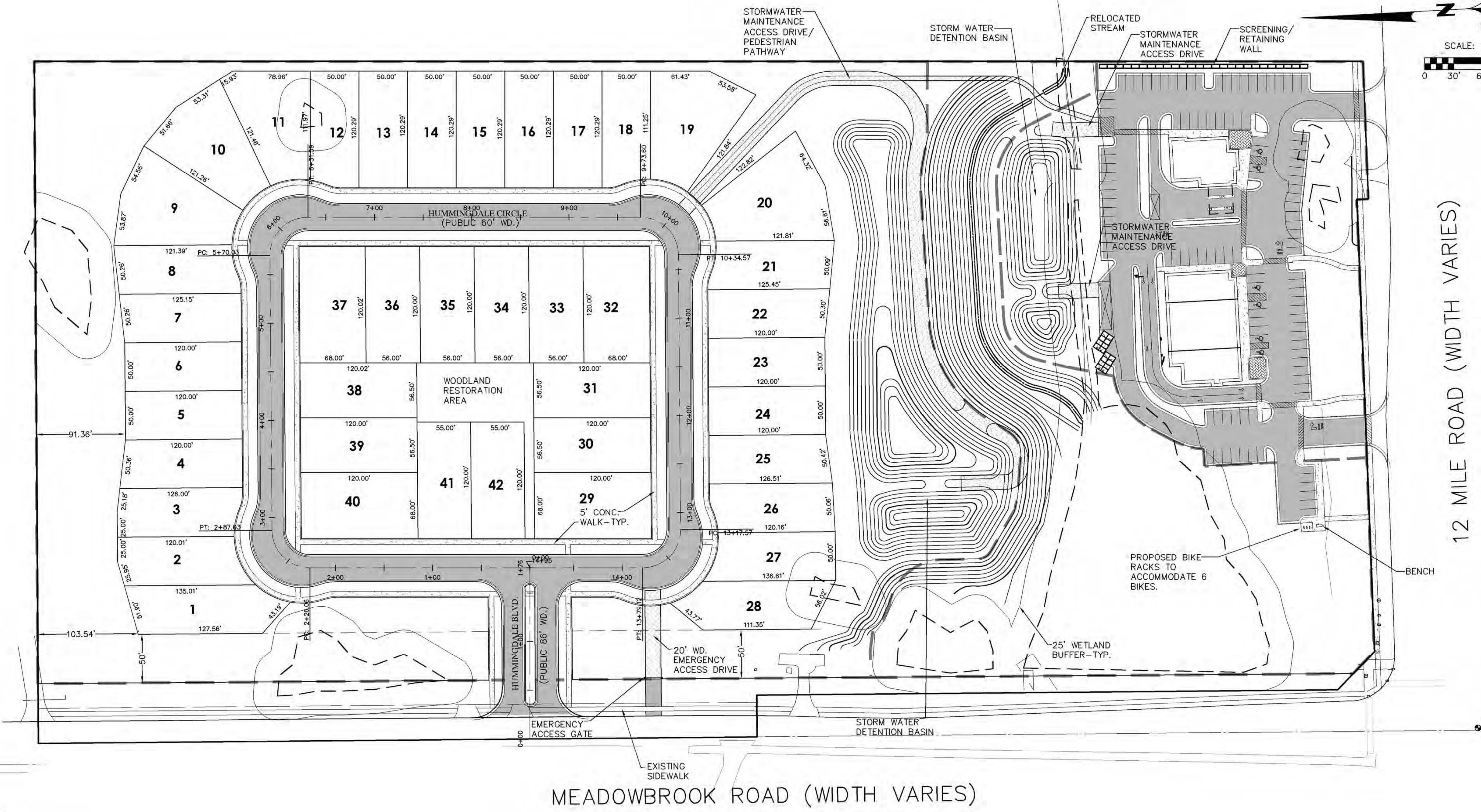
EMERGENCY ACCESS ONLY

NOTE: IF LOCKING GATE IS REQUIRED, CONTACT THE DEPARTMENT FOR MORE INFORMATION.

EMERGENCY ACCESS GATE DETAIL
NOT TO SCALE

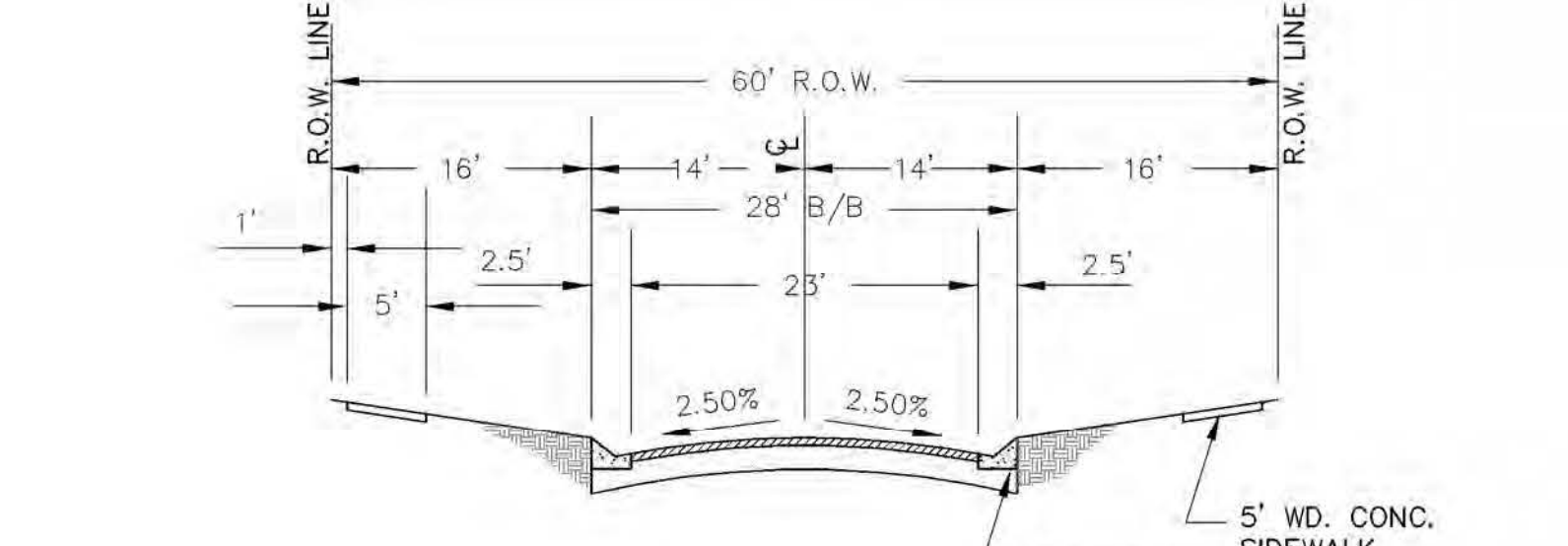


4" TO 6" CURB TRANSITION DETAIL
NOT TO SCALE

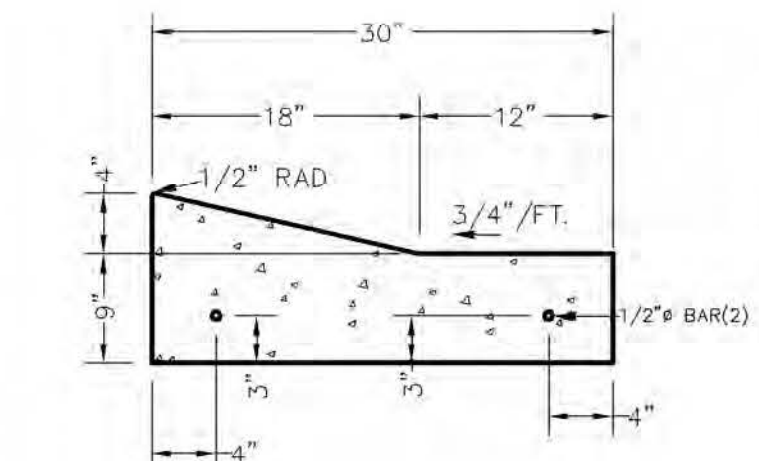


MEADOWBROOK ROAD (WIDTH VARIES)

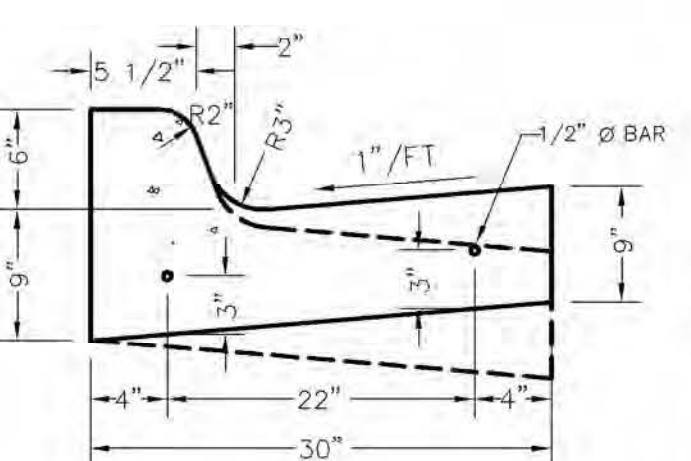
12 MILE ROAD (WIDTH VARIES)



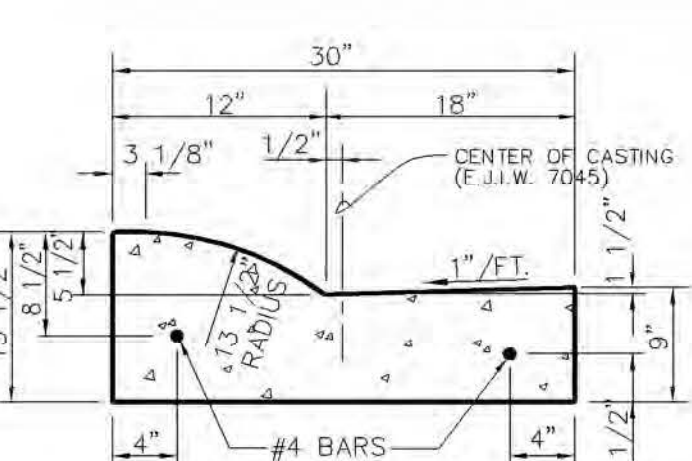
TYPICAL PAVEMENT SECTIONS
NOT TO SCALE



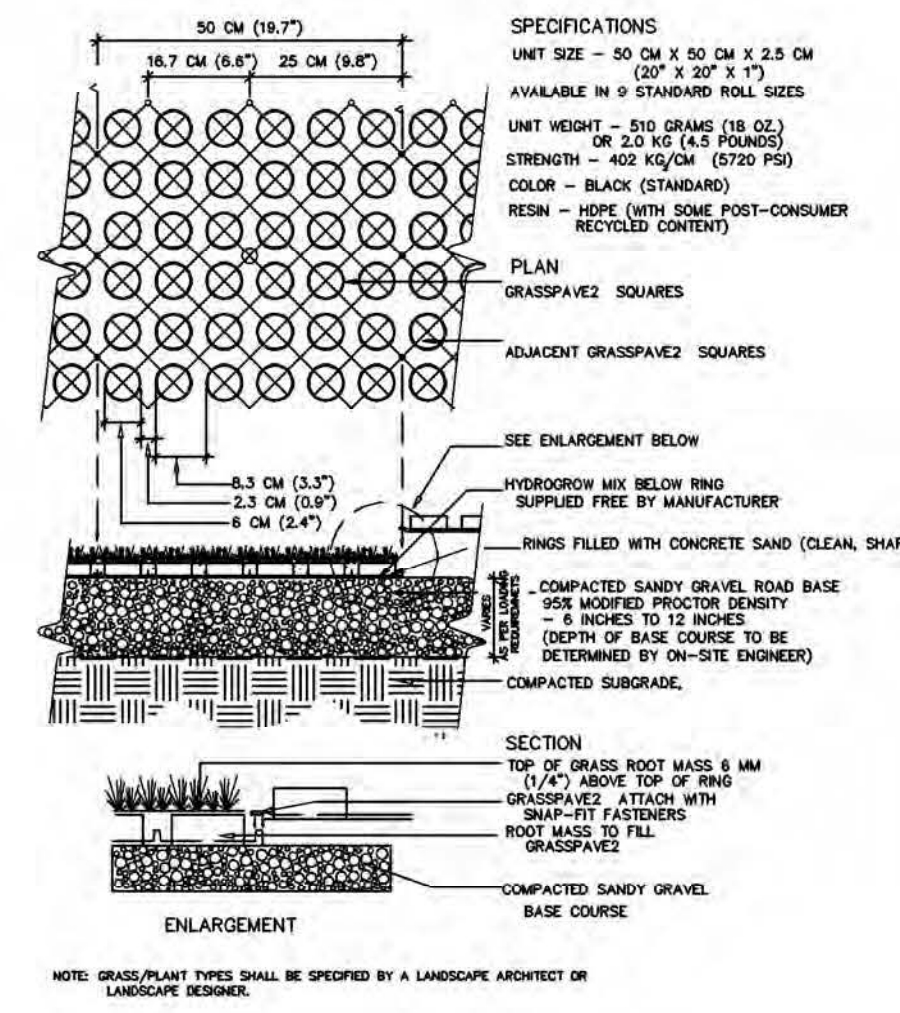
4" MOUNTABLE CURB & GUTTER DETAIL
NOT TO SCALE



6" CURB & GUTTER DETAIL
NOT TO SCALE
(FOR USE IN MEADOWBROOK RD. ROW)



B-2 MODIFIED CURB & GUTTER
NOT TO SCALE
(FOR USE ON ISLANDS & 12 MILE RD.)



TYPICAL GRASSPAVE2 DETAIL
NOT TO SCALE

PAVEMENT LEGEND:

- ASPHALT PAVEMENT
 - 2" BITUMINOUS MIX HMA 4C ON 2" BITUMINOUS MIX HMA 3C ON 8" 21AA AGGREGATE COMPACTED TO 95% MAX. UNIT DENSITY ON TRIAX TX140 GEOGRID. USE SS-1h BOND COAT BETWEEN LIFTS AT 0.10 S.Y./GAL.
- CONCRETE SIDEWALK/SAFETY PATH
 - 4" UNIFORM CONCRETE W/ PORTLAND CEMENT (4000 PSI) ON 6" 21AA CRUSHED LIMESTONE COMPACTED TO 95% MAX. UNIT DENSITY
- STORMWATER MAINTENANCE DRIVE/PEDESTRIAN PATHWAY
 - 3" MDOT 23A AGGREGATE ON 10" MDOT 21AA AGGREGATE BASE COMPACTED TO 95% MAX. UNIT DENSITY ON PREPARED SUBGRADE
- DUMPSTER PAD
 - 8" REINFORCED CONCRETE W/ PORTLAND CEMENT (4000 PSI) ON PREPARED SUBGRADE COMPACTED TO 95% MAX. UNIT DENSITY
- GRASS PAVER (SEE DETAIL THIS SHEET)
 - GRASSPAVE2 UNITS (OR APPROVED EQUAL) ON 8" MDOT 21AA AGGREGATE BASE COMPACTED TO 95% MAX. UNIT DENSITY ON PREPARED SUBGRADE

PAVEMENT SECTIONS SUBJECT TO RECOMMENDATION BY A QUALIFIED GEOTECHNICAL ENGINEER.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

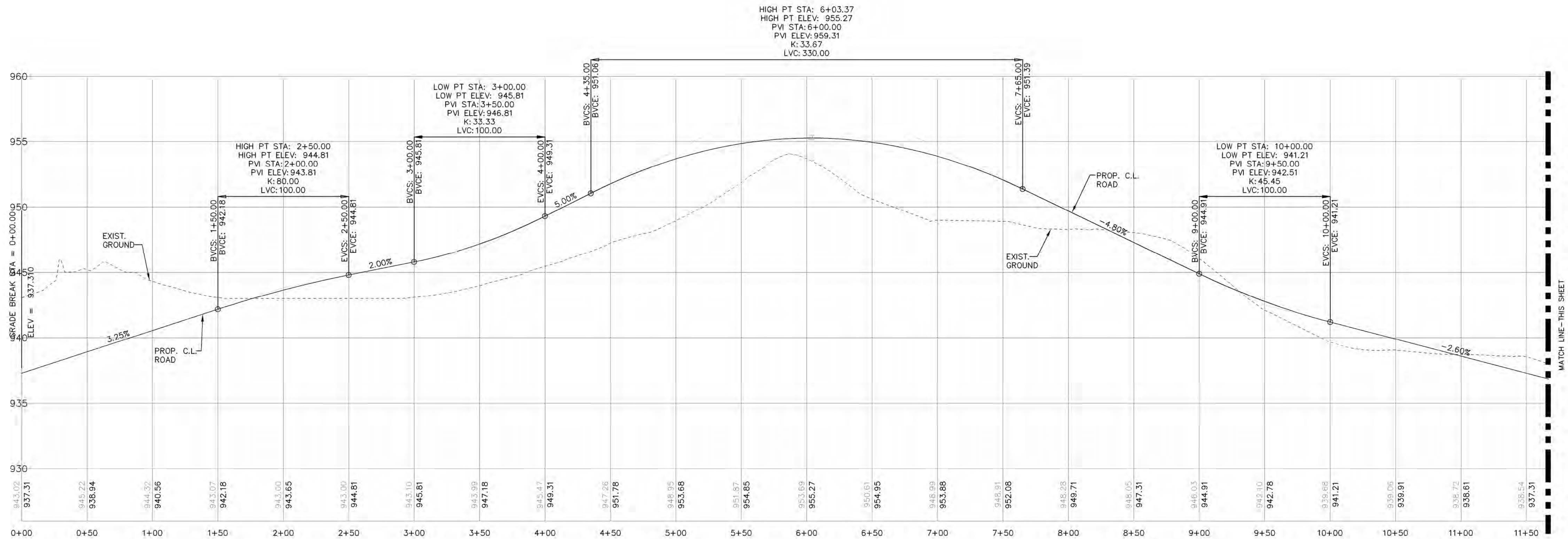
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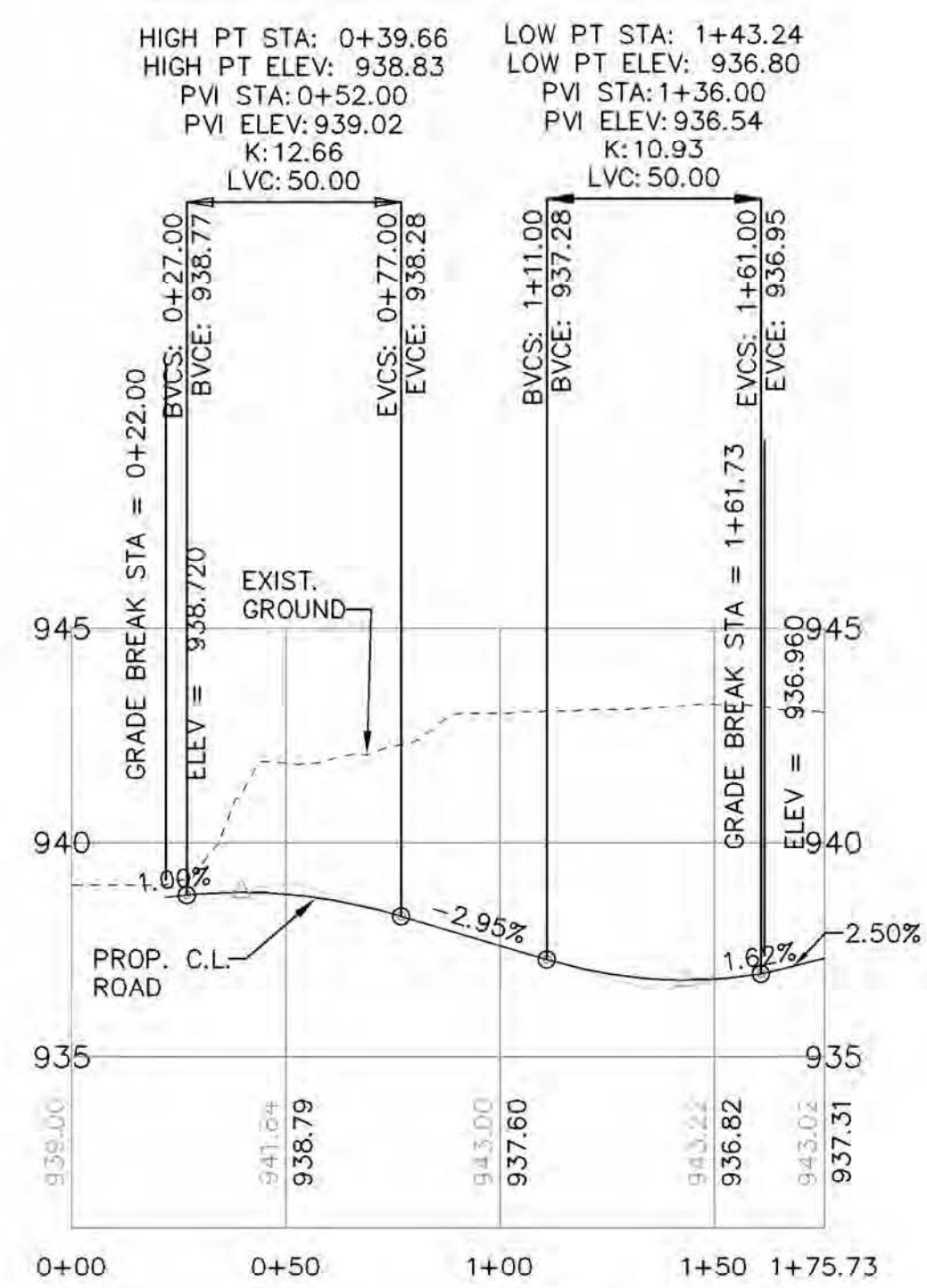
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PAVING PLAN
BEACON HILL PARK
NOVI, MICHIGAN, SECTION 12

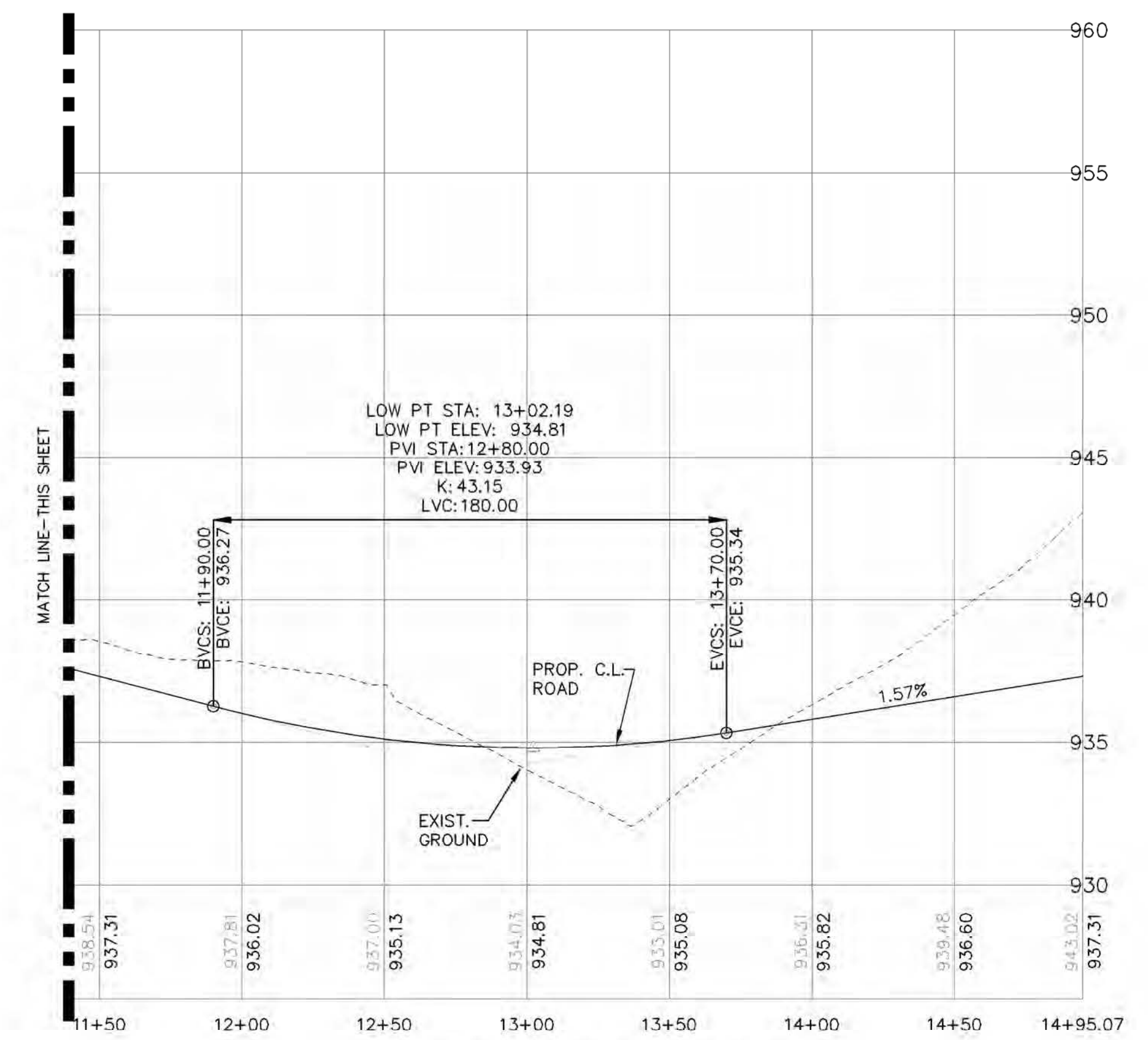
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HUMMINGBIRD CIRCLE



HUMMINGBIRD BLVD.



HUMMINGBIRD CIRCLE

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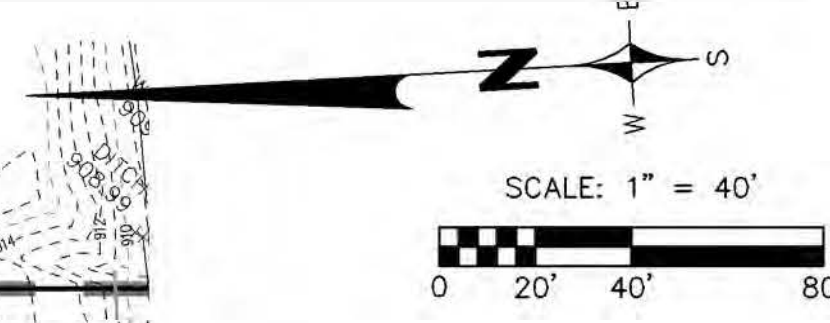
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ROAD PROFILES
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

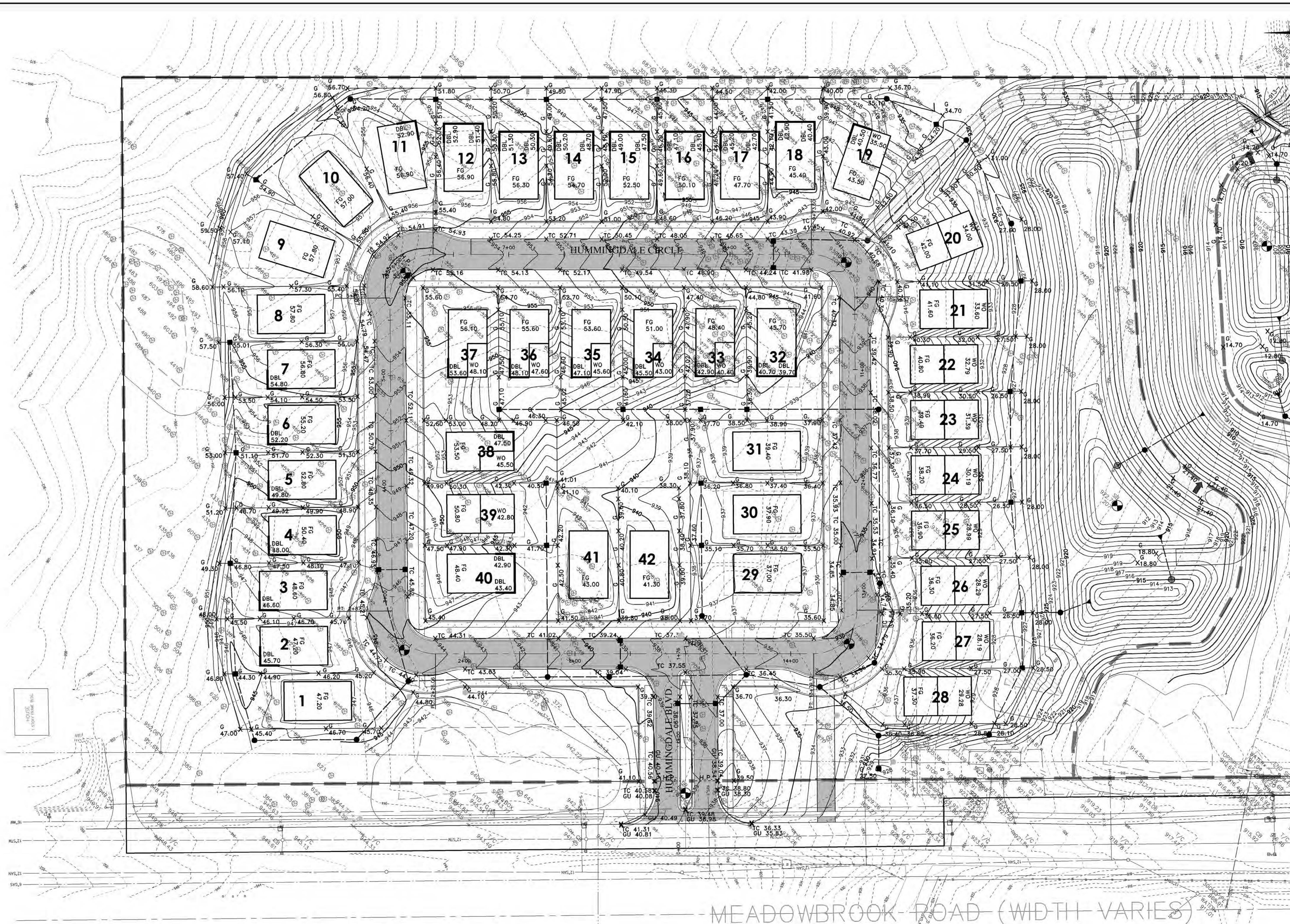
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- LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - ▣ INLET
 - CLEANOUT
 - END SECTION
 - ROOF DRAIN
 - GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - UTILITY POLE
 - GUY ANCHOR
 - LIGHT POLE
 - SIGN
 - TREE
 - TREE LINE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - SPOT ELEVATION

- PROPOSED**
- MANHOLE
 - CATCH BASIN
 - ▣ INLET
 - CLEANOUT
 - END SECTION
 - ROOF DRAIN
 - GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - PROPOSED GRADE
- TC = TOP OF CURB
 TW = TOP OF WALK
 TP = TOP OF PAVEMENT
 TB = TOP OF BANK
 G = GROUND
 D = DITCH
 GU = GUTTER
 FG = FINISH GRADE
 FF = FINISH FLOOR
 DBL = BRICK LEDGE



REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

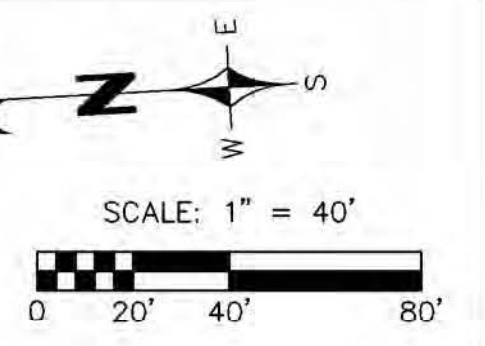
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GRADING & DETENTION PLAN—MEADOWS
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE 1/11/16 SCALE HOR: 1" = 40'
 DESIGNED BY SRB VER: 1" = N/A
 JOB NO. 14151
 DRAWN BY SRB SHEET SP-9



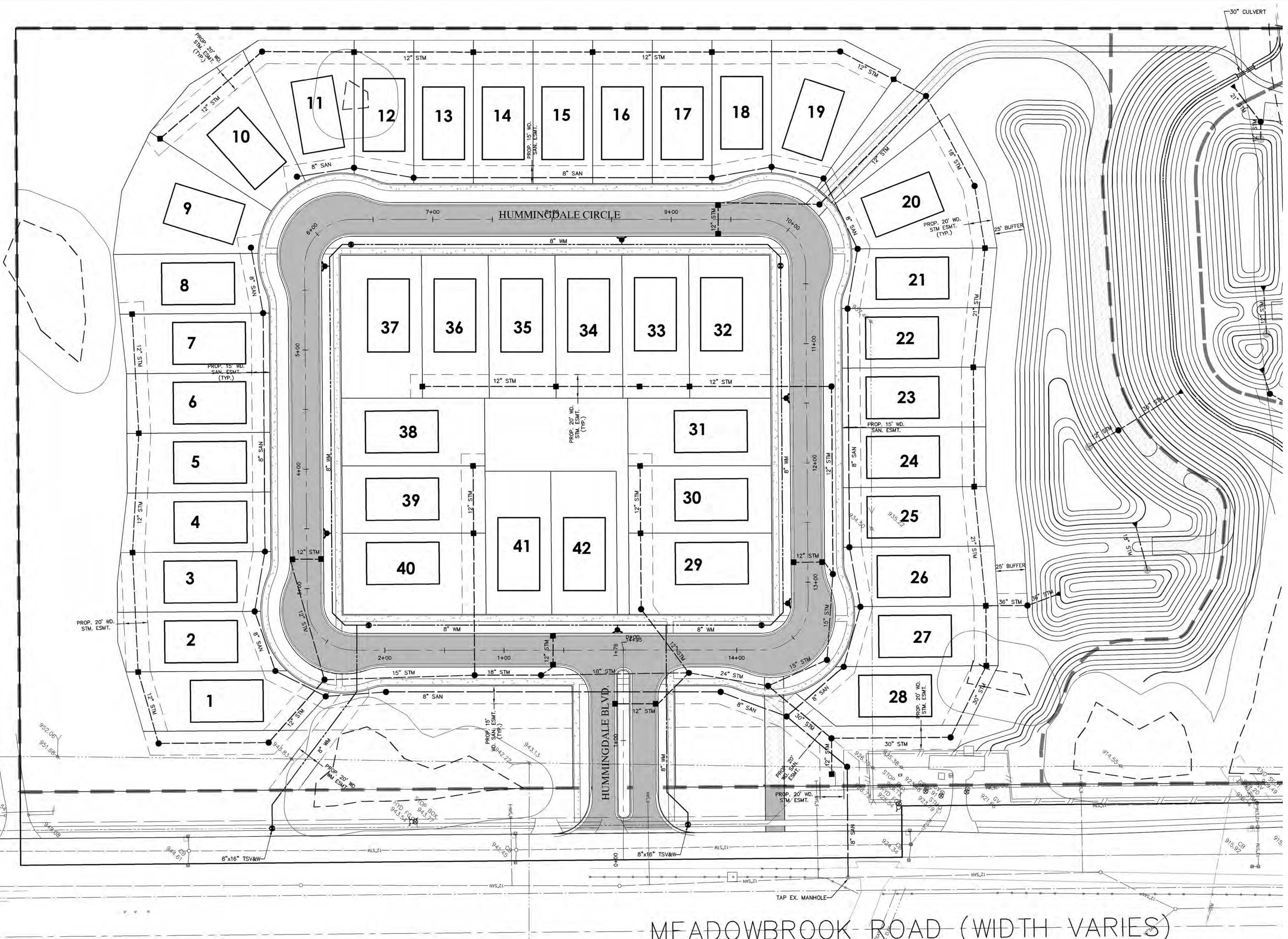
UTILITY LEGEND

EXISTING

- MANHOLE
- CATCH BASIN
- ◇ INLET
- ◊ CLEANOUT
- △ END SECTION
- ▽ ROOF DRAIN
- ⊗ GATE VALVE
- ⊕ HYDRANT
- ⊖ WATER SHUT-OFF
- ⊙ UTILITY POLE
- ⊙ GUY ANCHOR
- ⊙ LIGHT POLE
- ⊙ SIGN
- ⊙ TREE
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE

PROPOSED

- MANHOLE
- CATCH BASIN
- ◆ INLET
- ◇ CLEANOUT
- △ END SECTION
- ▽ ROOF DRAIN
- ⊗ GATE VALVE
- ⊕ HYDRANT
- ⊖ WATER SHUT-OFF
- ⊙ TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- ⊕ DITCH



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.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

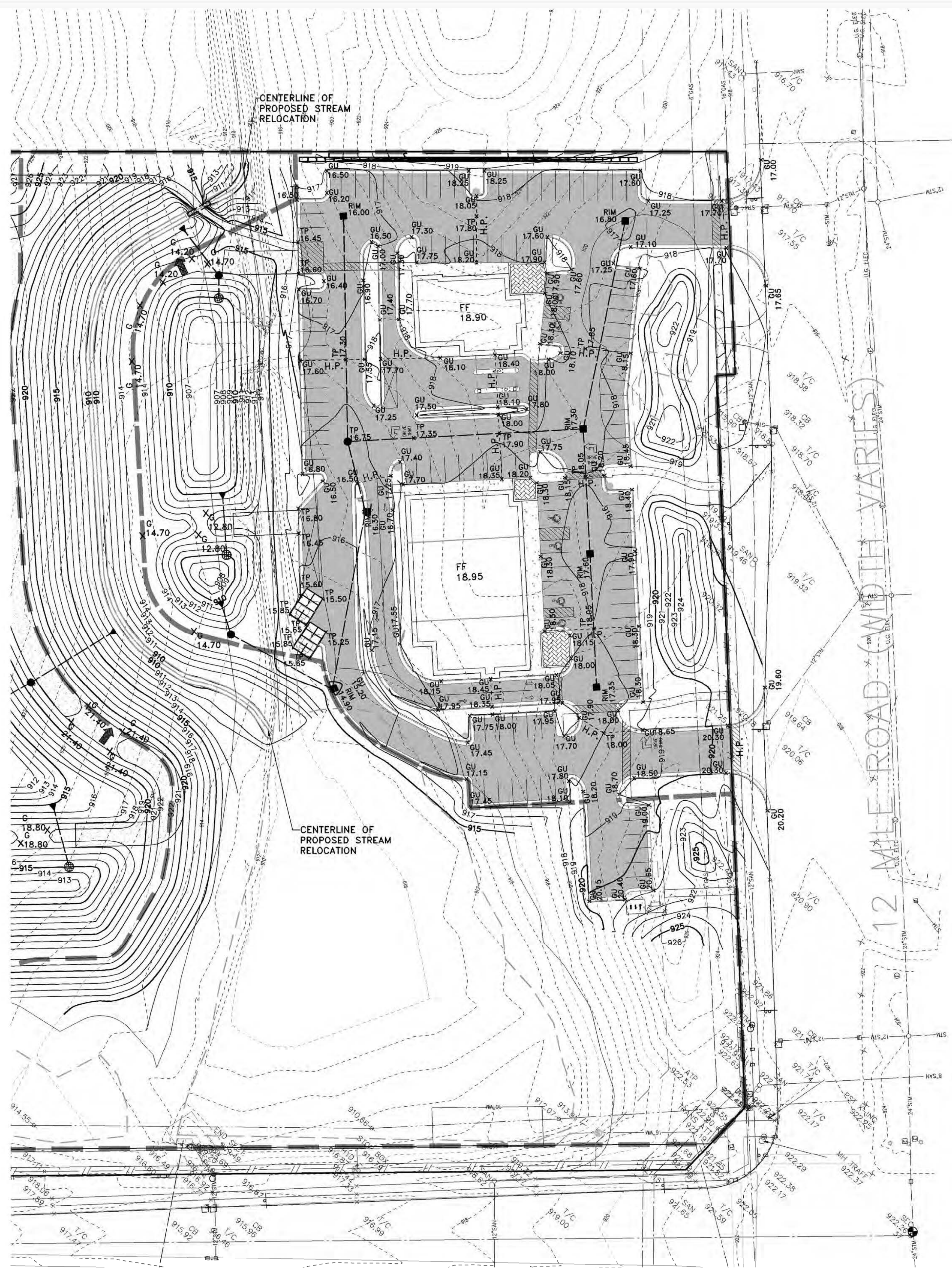
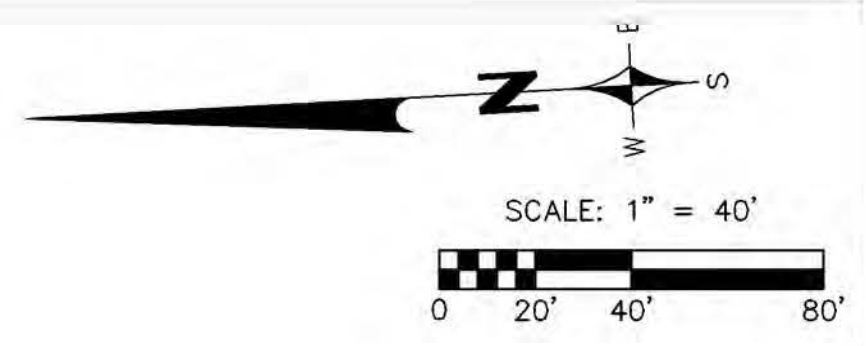
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**UTILITY PLAN-MEADOWS
 BEACON HILL PARK**
 NOVI, MICHIGAN, SECTION 12

DATE	1/11/16	SCALE	HOR: 1" = 40' VER: 1" = N/A
DESIGNED BY	SRB	JOB NO.	14151
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LEGEND
EXISTING

- MANHOLE
- CATCH BASIN
- ⊠ INLET
- CLEANOUT
- △ END SECTION
- ◇ ROOF DRAIN
- ⊕ GATE VALVE
- ⊕ HYDRANT
- ⊕ WATER SHUT-OFF
- ⊕ UTILITY POLE
- ⊕ GUY ANCHOR
- ⊕ LIGHT POLE
- ⊕ SIGN
- ⊕ TREE
- TREE LINE
- SANITARY SEWER
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- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- SPOT ELEVATION

PROPOSED

- MANHOLE
 - CATCH BASIN
 - ⊠ INLET
 - CLEANOUT
 - △ END SECTION
 - ◇ ROOF DRAIN
 - ⊕ GATE VALVE
 - ⊕ HYDRANT
 - ⊕ WATER SHUT-OFF
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - PROPOSED GRADE
- x 99.0
- TC = TOP OF CURB
 - TW = TOP OF WALK
 - TP = TOP OF PAVEMENT
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 - G = GROUND
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 - GU = GUTTER
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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

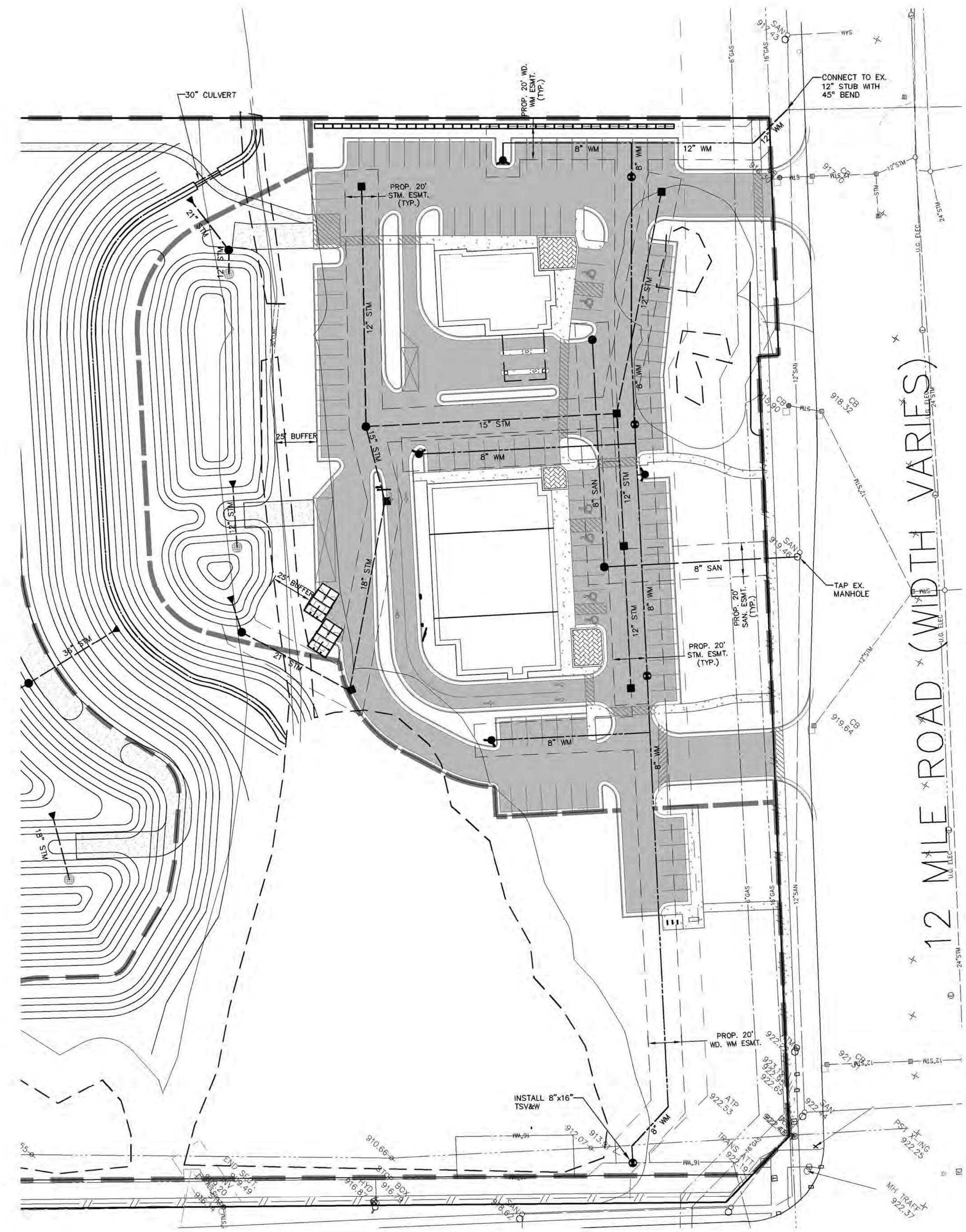
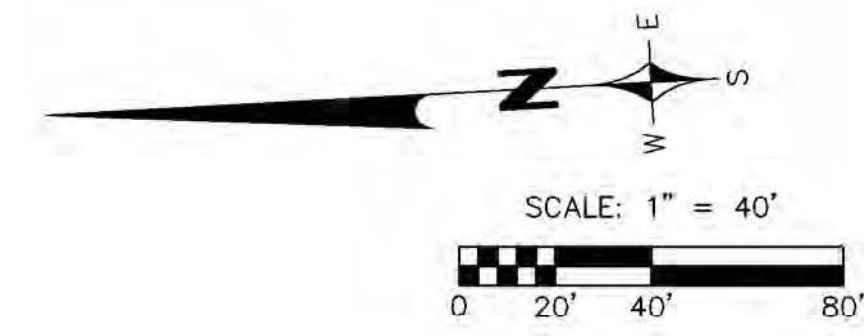
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GRADING & DETENTION PLAN—SHOPPES
BEACON HILL PARK
NOVI, MICHIGAN, SECTION 12

DATE: 1/11/16 SCALE: HOR: 1" = 40' VER: 1" = N/A
DESIGNED BY: SRB JOB NO.: 14151
DRAWN BY: SRB SHEET: SP-11



UTILITY LEGEND

EXISTING

- MANHOLE
- CATCH BASIN
- ◇ INLET
- △ CLEANOUT
- ▽ END SECTION
- ◇ ROOF DRAIN
- ⊗ GATE VALVE
- ⊕ HYDRANT
- ⊖ WATER SHUT-OFF
- ⊙ UTILITY POLE
- ⊙ GUY ANCHOR
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- STORM SEWER
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- GAS MAIN
- ELECTRIC CABLE

PROPOSED

- MANHOLE
- CATCH BASIN
- INLET
- △ CLEANOUT
- ▽ END SECTION
- ◇ ROOF DRAIN
- ⊗ GATE VALVE
- ⊕ HYDRANT
- ⊖ WATER SHUT-OFF
- ⊙ TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- ⊕ DITCH

12 MILE ROAD (WIDTH VARIES)

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.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

ZEMET WOZNAK & ASSOCIATES
 Civil Engineers & Land Surveyors
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 NEW HUDSON, MICHIGAN 48165
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 WEST BLOOMFIELD, MI 48322 (248) 626-6114

UTILITY PLAN—SHOPPES
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE	1/11/16	SCALE	HOR: 1" = 40'
DESIGNED BY	SRB	VER:	1" = N/A
DRAWN BY	SRB	JOB NO.	14151
		SHEET	SP-12

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STORM WATER MANAGEMENT CALCULATIONS

RUNOFF FROM THE CONTRIBUTING AREA OF THE SITE SHALL BE COLLECTED, TREATED IN FOREBAYS AND STORED FOR THE 100-YEAR STORM EVENT WITHIN DETENTION BASINS PER THE CITY OF NOVI STORM WATER MANAGEMENT ORDINANCE.

1. EXISTING DRAINAGE TO WETLAND AND STREAM FROM OFFSITE

APPROXIMATELY 124 AC (0.19 SQ. MILES) OF LAND ON THE WEST SIDE OF MEADOWBROOK ROAD DISCHARGES THROUGH A 30" CULVERT UNDER MEADOWBROOK ROAD INTO THE EXISTING WETLAND ON THE BEACON HILL SITE USING THE ADEQ MANUAL FOR "COMPUTING FLOOD DISCHARGES FOR SMALL UNGAGED WATERSHEDS" PUBLISHED 2001. THE FOLLOWING FLOWS WERE CALCULATED FOR THE BACKFLOOD AND 100-YEAR STORM EVENTS.

BANKFULL FLOOD EVENT:

AREA = 124 ACRES = 0.19 MI²

FLOW TYPE	LENGTH (FT)	Δ ELEV. (FT)	SLOPE (%)	V.S. (FPS)	Tc (HR)
WATERWAY	200	960-940=20	10.00	3.79	0.01
WATERWAY	1000	950-940=10	2.00	1.70	0.16
WATERWAY	250	940-930=10	4.00	2.40	0.03
WATERWAY	650	930-920=10	1.54	1.49	0.12
WATERWAY	400	920-911=9	2.25	1.80	0.06
SMALL TRB	500	912-911=1	0.20	0.94	0.15
Tc TOTAL =					0.88 HR

GROUP	% OF TOTAL AREA	AREA (MI ²)	LAND USE TYPE	% AREA RCN	SRC	MI ² -IN	RAINFALL" (0.31)
B	100.0	0.19	WOODS (FARM)	22	0.04	60	0.15
			MEADOW	67	0.13	38	0.11
			FARM	11	0.02	74	0.55
							0.011
							0.031

* RAINFALL = 2.4" (NO ADJUSTMENT NEEDED) FOR 2-YR., 24 HR STORM (BANKFULL)

TOTAL MI²-IN = 0.031
 AVG. SRC = 0.16"
 COM² RCN = 59
 $Q_c = 330 \times 0.19 \times 0.16 = 10.0$ CFS
 $Q_c = 330 \times 0.19 \times 1.05 = 65.8$ CFS
 ADJUSTMENT FACTOR = 0.86 (PONDING AT THE DESIGN POINT)
 $Q_{c-adj} = 10.0 \times 0.86 = 8.6$ CFS

100-YEAR STORM EVENT:

AREA = 124 ACRES = 0.19 MI²

FLOW TYPE	LENGTH (FT)	Δ ELEV. (FT)	SLOPE (%)	V.S. (FPS)	Tc (HR)
WATERWAY	200	960-940=20	10.00	3.79	0.01
WATERWAY	1000	940-930=10	2.00	1.70	0.16
WATERWAY	250	940-930=10	4.00	2.40	0.03
WATERWAY	650	930-920=10	1.54	1.49	0.12
WATERWAY	400	920-911=9	2.25	1.80	0.06
SMALL TRB	500	912-911=1	0.20	0.94	0.15
Tc TOTAL =					0.88 HR

GROUP	% OF TOTAL AREA	AREA (MI ²)	LAND USE TYPE	% AREA RCN	SRC	MI ² -IN	RAINFALL" (0.20)
B	100.0	0.19	WOODS (FARM)	22	0.04	60	1.07
			MEADOW	67	0.13	38	0.96
			FARM	11	0.02	74	2.05
							0.04
							0.20

* RAINFALL = 4.6" (NO ADJUSTMENT NEEDED) FOR 100-YR., 24 HR STORM

TOTAL MI²-IN = 0.20
 AVG. SRC = 1.05"
 COM² RCN = 59
 $Q_c = 330 \times 0.19 \times 1.05 = 65.8$ CFS
 $Q_c = 330 \times 0.19 \times 1.05 = 65.8$ CFS
 ADJUSTMENT FACTOR = 0.86 (PONDING AT THE DESIGN POINT)
 $Q_{c-adj} = 65.8 \times 0.86 = 56.6$ CFS

2. RESIDENTIAL BASIN

RUNOFF COEFFICIENT, 'C'

OVERALL AREA = 13.60 AC.
 CONTRIBUTING AREA = 13.39 AC. (THE REMAINING 0.21 AC. CONSIST OF EXISTING WETLAND AREAS)

ROOF: 2.06 AC. @ 0.95 = 1.96
 PAVEMENT: 1.34 AC. @ 0.95 = 1.27
 OPEN WATER: 0.17 AC. @ 1.00 = 0.17
 OPEN SPACE: 5.62 AC. @ 0.35 = 1.97
 13.39 AC. @ 0.54

'C' = 6.84 / 13.39 = 0.51 USE 'C' = 0.60

100-YEAR DETENTION:

$Q_c = 0.15 \text{ CFS/AC} \times 13.39 \text{ AC} = 2.01 \text{ CFS}$
 $Q_c = 2.01 \text{ CFS} / (13.39 \text{ AC.} \times 0.60) = 0.25 \text{ CFS/AC-IMP.}$
 $T_{det} = 25 \times (10012.5 / 0.25) = 1781 \text{ MINUTES}$
 $V_{det} = [(14500 \times 1781) / (25 \times 1781)] - [40 \times 0.25 \times 1781] = 12,688 \text{ CF/AC-IMP.}$
 $V_{det} = 12,688 \times 13.39 \times 0.60 = 101,955 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 101,955 = **112,122 CF**

FOREBAY (FIRST FLUSH):

$V_f = 1815 \times 13.39 \times 0.60 = 14,582 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 14,582 = **16,040 CF**

BANKFULL:

$V_b = 5160 \times 13.39 \times 0.60 = 41,455 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 41,455 = **45,600 CF**

VOLUME PROVIDED (100-YEAR):

ELEV.	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOL. (CF)
915	5336	6576	1	6576
916	7816	10522	1	10522
917	13228	15022	1	15022
918	16816	18664	1	18664
919	20512			
919	DETENTION ONLY (OVERALL)			
919	27399	30131	1	30131
920	32863	35040	1	35040
921	37216			
				115,955 CF

100-YEAR DETENTION BY INTERPOLATION:

T/STORAGE = 920.9, V = 112,451 CF

BANKFULL VOLUME BY INTERPOLATION:

T/STORAGE = 918.7, V = 45,185 CF

VOLUME PROVIDED (FOREBAY):

ELEV.	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOL. (CF)
915	2054	2539	1	2539
916	3204	3590	1	3590
917	4155	4763	1	4763
918	5372	6040	1	6040
919	6709			
				16,932 CF

FOREBAY STORAGE BY INTERPOLATION:

T/STORAGE = 916.8, V = 15,724 CF

OUTLET SIZING:

A = 0.3988(Am)^{1/4} / H^{1/2}
 H = 918.8 - 915.0 = 3.8'
 A = 0.3988(1472.3)(3.8)^{1/4} / 172800 = 0.03427 SF
 NUMBER OF 1" DIA. HOLES = 0.03427 / 0.0055 = 6.2
 USE (6) 1" DIA. HOLES AT ELEVATION 915.0

DETENTION BASIN RESTRICTOR PIPE:

Q = 1.98 CFS
 H = 920.9 - 915.0 = 5.9'
 A = 1.98 / (0.62(64.4 × 5.9)) = 0.1638 SF

THIS EQUATES TO A 5.48" ORIFICE. USE A 12" DIA. OUTLET PIPE WITH A CAPPED TEE. DRILL A 5.5" DIA. HOLE IN THE BOTTOM CAP OF THE VERTICAL EXTENSION TO ACT AS THE RESTRICTOR.

DETENTION BASIN STANDPIPE ORIFICE (BANKFULL DISCHARGE):

H = 918.7 - 915.0 = 3.7'
 A = 0.3988(Am)^{1/4} / H^{1/2}
 A = 0.3988(145(3.7)^{1/4}) / 172800 = 0.04937 SF
 NUMBER OF 1" DIA. HOLES = 0.04937 / 0.0055 = 8.9
 USE (9) 1" DIA. HOLES AT ELEVATION 915.0

ACTUAL BANKFULL RELEASE RATE:

Q = 0.62 × 0.0055 × 8 × (64.4)(3.7) = 0.42 CFS

3. COMMERCIAL BASIN

RUNOFF COEFFICIENT, 'C'

OVERALL AREA = 3.05
 CONTRIBUTING AREA = 3.05 AC.
 ROOF: 0.26 AC. @ 0.95 = 0.25
 PAVEMENT: 1.43 AC. @ 0.95 = 1.35
 OPEN WATER: 0.13 AC. @ 1.00 = 0.13
 OPEN SPACE: 1.23 AC. @ 0.35 = 0.43
 3.05 AC. @ 2.16

'C' = 2.16 / 3.05 = 0.70 USE 'C' = 0.70

100-YEAR DETENTION:

$Q_c = 0.15 \text{ CFS/AC} \times 3.05 \text{ AC} = 0.46 \text{ CFS}$
 $Q_c = 0.46 \text{ CFS} / (3.05 \text{ AC.} \times 0.70) = 0.22 \text{ CFS/AC-IMP.}$
 $T_{det} = 25 \times (10012.5 / 0.22) = 1915 \text{ MINUTES}$
 $V_{det} = [(14500 \times 1915) / (25 \times 1915)] - [40 \times 0.22 \times 1915] = 12,909.5 \text{ CF/AC-IMP.}$
 $V_{det} = 12,909.5 \times 3.05 \times 0.70 = 27,562 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 27,562 = **30,318 CF**

FOREBAY (FIRST FLUSH):

$V_f = 1815 \times 3.05 \times 0.70 = 3,875 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 3,875 = **4,263 CF**

BANKFULL:

$V_b = 5160 \times 3.05 \times 0.70 = 11,017 \text{ CF}$
 ADD 10% FOR CONSTRUCTION TOLERANCES = 1.10 × 11,017 = **12,118 CF**

VOLUME PROVIDED (100-YEAR):

ELEV.	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOL. (CF)
910	4926	5588	1	5588
911	6250	6971	1	6971
912	7692	8144	0.8	6515
912.8	8596			
912.8	DETENTION ONLY (OVERALL)			
913	11936	11473	0.2	2295
913	11936	12770	0.7	8939
913.7	13402			
				30,308 CF

100-YEAR DETENTION BY INTERPOLATION:

T/STORAGE = 913.7, V = 30,308 CF

BANKFULL VOLUME BY INTERPOLATION:

T/STORAGE = 912.0, V = 12,269 CF

VOLUME PROVIDED (FOREBAY):

ELEV.	AREA (SF)	AVG AREA (SF)	DEPTH (FT)	VOL. (CF)
910	758	1002	1	1002
911	1247	1545	1	1545
912	1844	2198	1	2198
913	2552			
				4,745 CF

FOREBAY STORAGE BY INTERPOLATION:

T/STORAGE = 912.8, V = 4,305 CF

OUTLET SIZING:

FOREBAY STANDPIPE ORIFICE:
 A = 0.3988(Am)^{1/4} / H^{1/2}
 H = 912.8 - 910 = 2.8'
 A = 0.3988(9726(2.8)^{1/4}) / 86400 = 0.0108 SF
 NUMBER OF 1" DIA. HOLES = 0.0108 / 0.0055 = 1.97
 USE (2) 1" DIA. HOLES AT ELEVATION 910.0

DETENTION BASIN RESTRICTOR PIPE:

Q = 0.46 CFS
 H = 912.7 - 910 = 2.7'
 A = 0.46 / (0.62(64.4 × 2.7)) = 0.04806 SF
 THIS EQUATES TO A 2.97" DIA. ORIFICE. USE A 12" DIA. OUTLET PIPE WITH A CAPPED TEE. DRILL A 4.0" DIA. HOLE IN THE BOTTOM CAP OF THE VERTICAL EXTENSION TO ACT AS THE RESTRICTOR SINCE 4.0" IS THE MINIMUM ALLOWABLE RESTRICTOR.

DETENTION BASIN STANDPIPE ORIFICE (BANKFULL DISCHARGE):

H = 912.0 - 910.0 = 2.0'
 A = 0.3988(Am)^{1/4} / H^{1/2}
 A = 0.3988(1161(2.0)^{1/4}) / 172800 = 0.0182 SF
 NUMBER OF 1" DIA. HOLES = 0.0182 / 0.0055 = 3.3
 USE (3) 1" DIA. HOLES AT ELEVATION 910.0

ACTUAL BANKFULL RELEASE RATE:

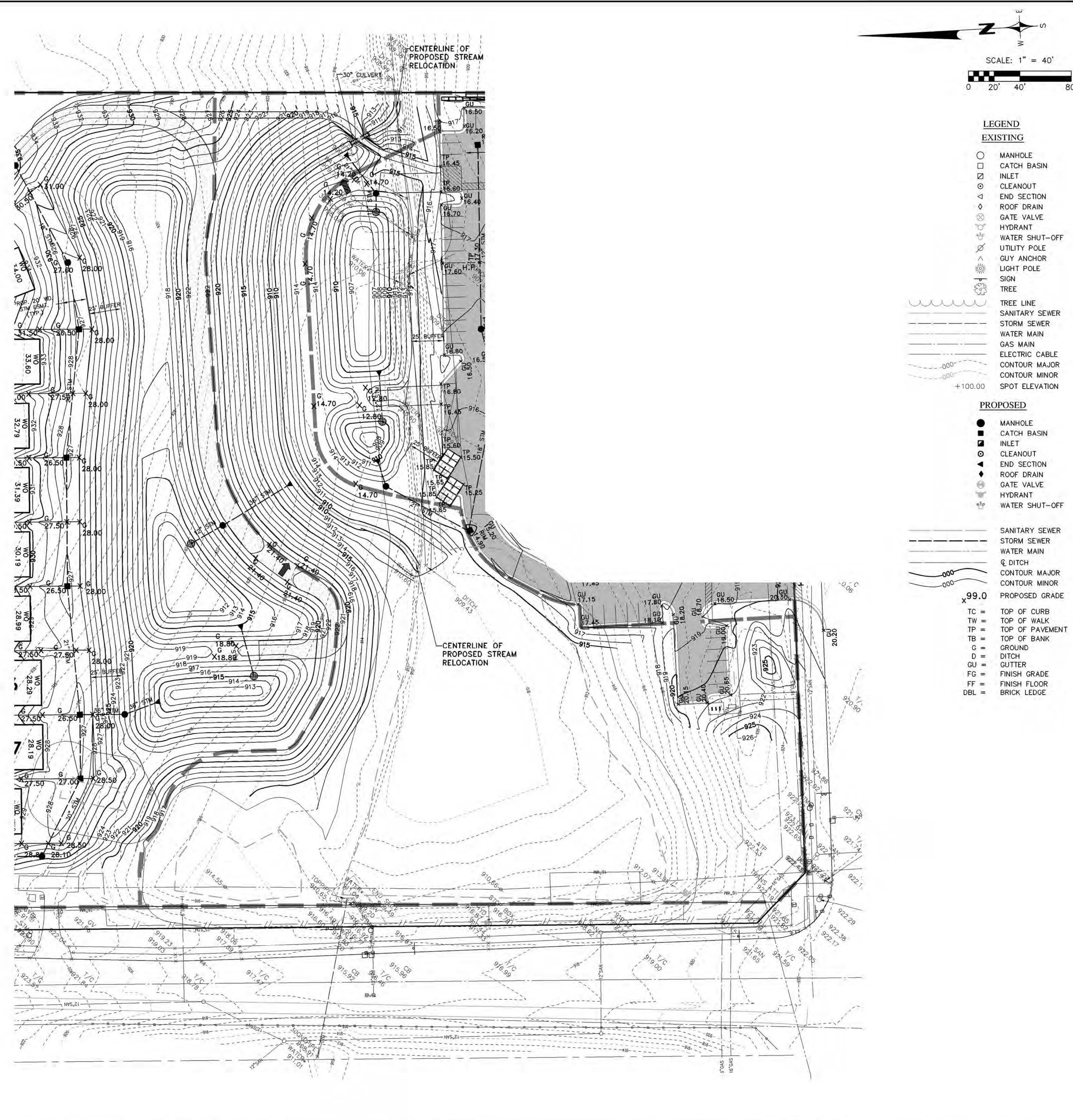
Q = 0.62 × 0.0055 × 3 × (64.4)(2.0) = 0.12 CFS

4. SIZE NEW CULVERT AT PROPOSED STREAM CROSSING

THE NEW CULVERT SHALL BE SIZED TO ACCOMMODATE THE BANKFULL FLOOD FLOW IN THE RELOCATED STREAM.

OFF-SITE FLOW = 8.6 CFS
 RESIDENTIAL DISCHARGE = 0.40 CFS
 COMMERCIAL DISCHARGE = 0.11 CFS
 TOTAL FLOW = 9.13 CFS

USING MANNING'S TABLE, A 30" DIAMETER CULVERT AT 0.09% (MIN) SLOPE HAS A CAPACITY OF 12.5 CFS AND V = 2.5 FPS.



- LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - ◻ INLET
 - ◻ CLEANOUT
 - ◻ END SECTION
 - ◻ ROOF DRAIN
 - ◻ GATE VALVE
 - ◻ HYDRANT
 - ◻ WATER SHUT-OFF
 - ◻ UTILITY POLE
 - ◻ GUY ANCHOR
 - ◻ LIGHT POLE
 - ◻ SIGN
 - ◻ TREE
 - TREE LINE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - SPOT ELEVATION
- PROPOSED**
- MANHOLE
 - CATCH BASIN
 - ◻ INLET
 - ◻ CLEANOUT
 - ◻ END SECTION
 - ◻ ROOF DRAIN
 - ◻ GATE VALVE
 - ◻ HYDRANT
 - ◻ WATER SHUT-OFF
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - PROPOSED GRADE
- TC = TOP OF CURB
 TW = TOP OF WALK
 TP = TOP OF PAVEMENT
 TB = TOP OF BANK
 G = GROUND
 GU = GUTTER
 FG = FINISH GRADE
 FF = FINISH FLOOR
 DBL = BRICK LEDGE

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

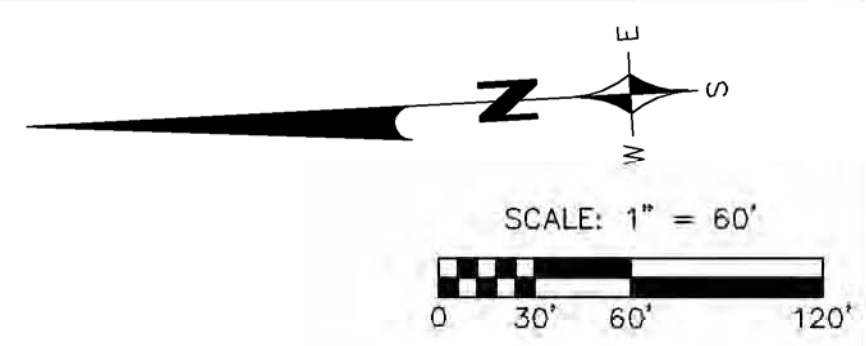
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STORMWATER MANAGEMENT PLAN
BEACON HILL PARK
 NOVI, MICHIGAN, SECTION 12

DATE: 1/11/16 SCALE: HOR: 1" = 40' VER: 1" = N/A
 DESIGNED BY: SRB JOB NO.: 14151
 DRAWN BY: SRB SHEET: SP-13



WETLAND AND BUFFER IMPACT LEGEND

	WETLAND IMPACT AREA
	BUFFER IMPACT AREA
	BUFFER RESTORATION AREA 28,636 SF (0.66 AC)

EXISTING WETLAND AND BUFFER TABLE:

DEVELOPMENT	WETLAND	BUFFER
MEADOWS:		
A	4,572 SF (0.10 AC)	6,753 SF (0.16 AC)
B	382 SF (0.009 AC)	3,985 SF (0.09 AC)
C	5,903 SF (0.14 AC)	12,456 SF (0.29 AC)
D	770 SF (0.02 AC)	5,347 SF (0.12 AC)
SHOPPES:		
G	783 SF (0.02 AC)	*
H	876 SF (0.02 AC)	8,950 SF (0.21 AC)
PARK TRAILHEAD:		
E	4,477 SF (0.10 AC)	**
EE	48,121 SF (1.10 AC)	48,516 SF (1.11 AC)
F	1,411 SF (0.03 AC)	**
TOTAL	67,295 SF (1.54 AC)	86,007 SF (1.98 AC)

* INCLUDED IN BUFFER AREA FOR WETLAND 'H'
** INCLUDED IN BUFFER AREA FOR WETLAND 'EE'

WETLAND AND BUFFER IMPACT TABLE:

DEVELOPMENT	WETLAND IMPACT	BUFFER IMPACT
MEADOWS:		
A	0	0
B	382 SF (0.009 AC)	3,985 SF (0.09 AC)
C	0	1,775 SF (0.04 AC)
D	770 SF (0.02 AC)	5,347 SF (0.12 AC)
SHOPPES:		
G	783 SF (0.02 AC)	*
H	876 SF (0.02 AC)	8,950 SF (0.21 AC)
PARK TRAILHEAD:		
E	3,092 SF (0.07 AC)	**
EE	3,223 SF (0.07 AC)	23,285 SF (0.53 AC)
F	1,410 SF (0.03 AC)	**
TOTAL	10,537 SF (0.24 AC)	43,342 SF (0.99 AC)

* BUFFER IMPACT INCLUDED WITH WETLAND 'H' IMPACT
** BUFFER IMPACT INCLUDED WITH WETLAND 'EE' IMPACT

NOTE: WETLAND 'EE' CONSTRUCTION TO BE COMPLETED WITH PARK TRAILHEAD DEVELOPMENT.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	1/11/16										
PSP	4/13/16										

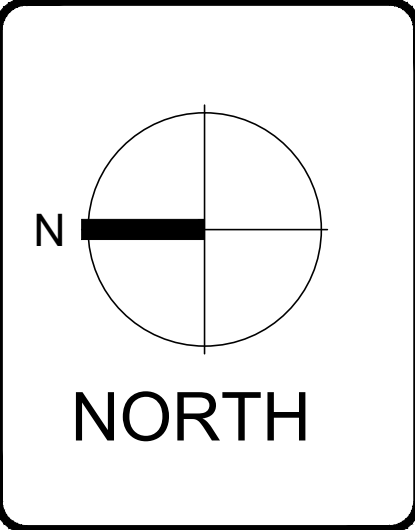
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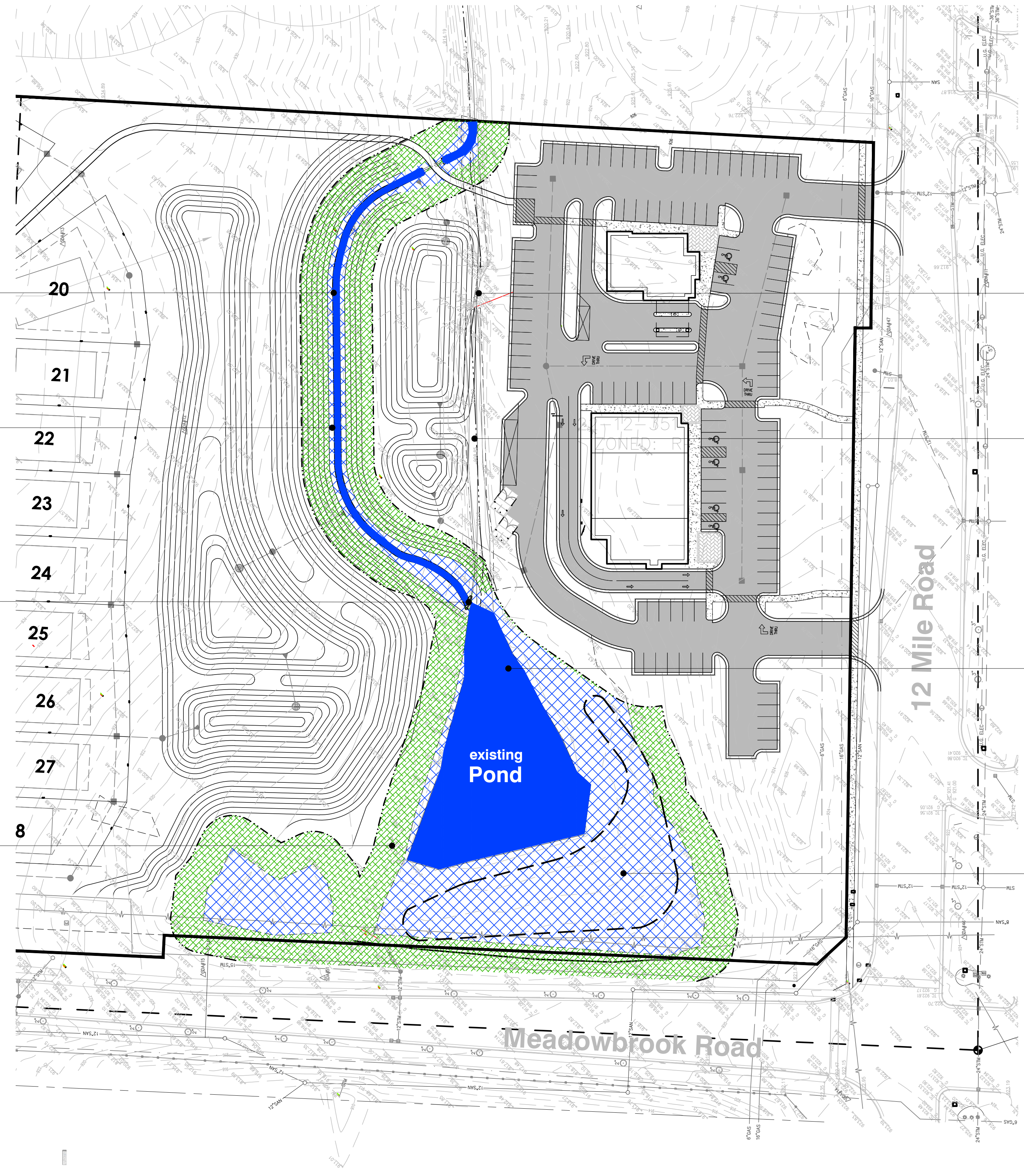
WETLAND & BUFFER IMPACT PLAN
BEACON HILL PARK
NOVI, MICHIGAN, SECTION 12

DATE: 1/11/16 SCALE: HOR: 1" = 60' VER: 1" = N/A
DESIGNED BY: SRB JOB NO.: 14151
DRAWN BY: SRB SHEET: SP-14



DATE:	ISSUED FOR:
01/11/16	PSP Submittal
P.I.C.	WH
P.M.	WH
DESIGN	MSP
TECH.	MSP
CHECKED	

PROJECT NUMBER
13021-1
SHEET NAME
Conceptual Restoration Program
SHEET NUMBER
W-1



Relocated stream
 Natural stream channel design
 Bankfull width 7.5'±
 485± LF

Created floodplain
 Width 15-30'

Boulder weir for grade control

Natural Features Setback
 Mechanical and chemical treatment of common buckthorn (0.2± acres). Seed with native wildflower species and plant native trees.

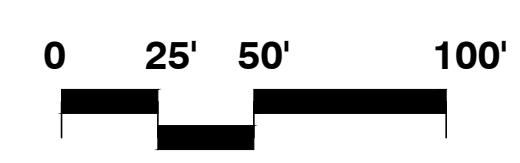
Existing failed culvert to be removed
 32± LF 30" dia.

Existing stream channel to be abandoned
 350± LF

Existing emergent/ open water wetland
 0.75± acres
 Habitat restoration to improve plant species diversity

Treat invasive species
 0.5± acres
 Mechanical and chemical treatment of common reed and reed canary grass. Replant with native wildflower species. Improve aesthetic character from Meadowbrook Road.

Conceptual Restoration Plan





client:
IVANHOE
MEADOWBROOK
LLC
 6689 Orchard Lake Road,
 Suite 314
 West Bloomfield, Michigan
 48332
 ph. (248) 626-6114

project:
Beacon Hill
Park
 A planned Single Family
 and Neighborhood
 Commercial Retail

project location:
 City of Novi, MI
 12-Mile Road &
 Meadowbrook Road

sheet title:
OVERALL PLANTING
PLAN VIEW

job no./issue/revision date:
 LS15.010.06 SPA 6-26-2015
 LS16.006.01 PSP 1-11-2016
 LS16.006.04 PSP 4-13-2016

drawn by:
JP, KH
 checked by:
FP
 date:
1-4-2015

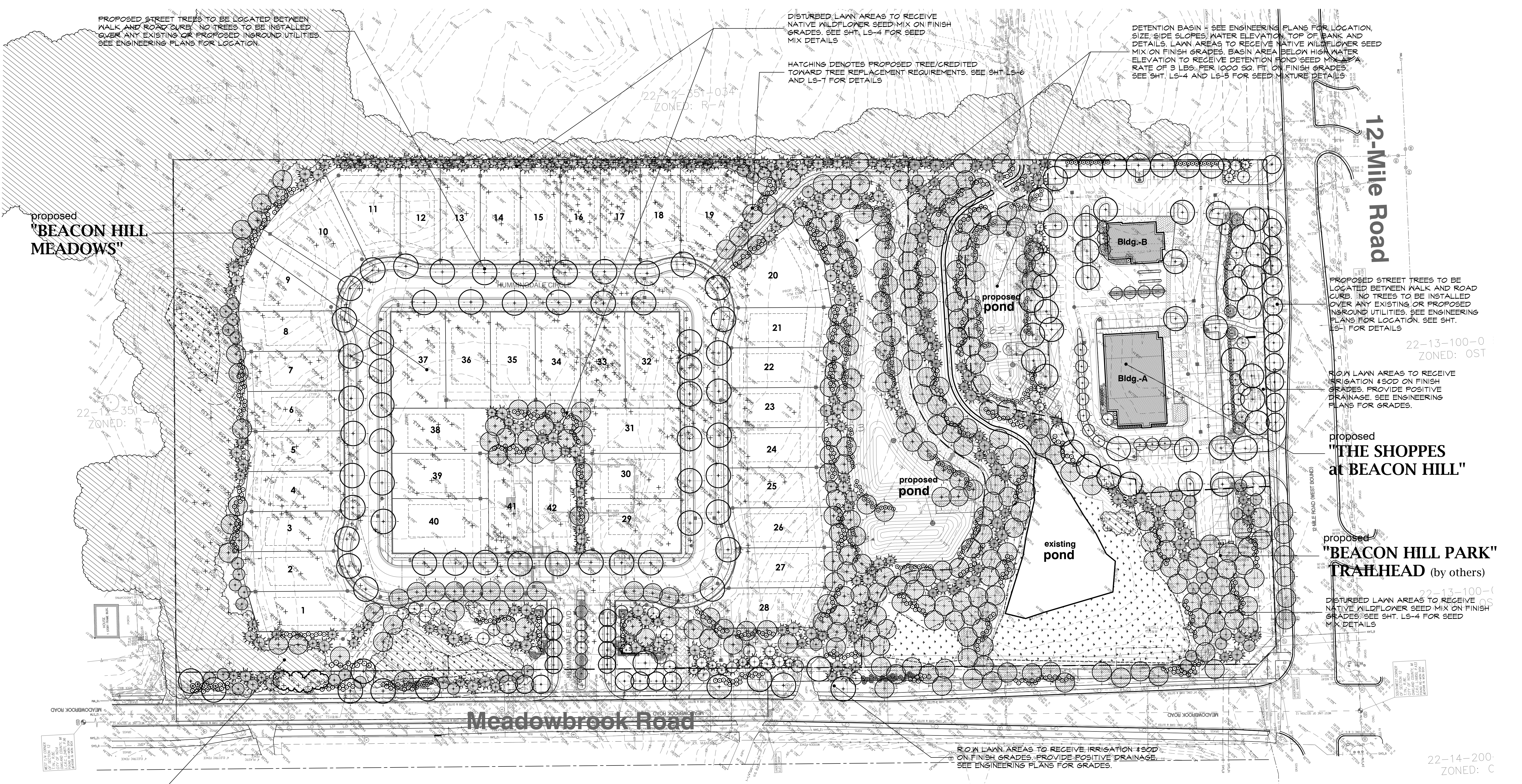
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The location and elevations of existing
 underground utilities as shown on this
 drawing are only approximate. no guarantee
 is either expressed or implied as to the
 completeness of accuracy; contractor shall be
 exclusively responsible for determining the
 exact location and elevation prior to the start
 of construction

project no:
LS16.008.01

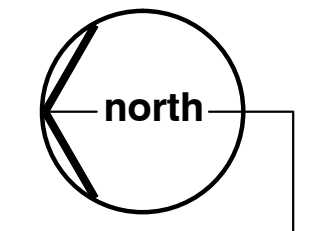
sheet no:
LS-1 of 7



CROSS HATCHING DENOTES WOODS
 AND VEGETATION TO REMAIN

overall landscape plan view for:
“Beacon Hill Park”
 City of Novi, Michigan

note
 preliminary residential concept plan for inspection
 purposes only and in no way official or approved
 for record purposes.



general landscape notes:

- LANDSCAPE CONTRACTOR SHALL VISIT THE SITE, INSPECT EXISTING CONDITIONS, REVIEW PROPOSED PLANTINGS AND RELATED WORK. CONTACT THE OWNER AND/OR LANDSCAPE ARCHITECT WITH ANY CONCERNS OR DISCREPANCY BETWEEN THE PLAN, PLANT MATERIAL LIST, AND/OR SITE CONDITIONS.
- PRIOR TO BEGINNING OF CONSTRUCTION ON ANY WORK, CONTRACTORS SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES, GAS, ELECTRIC, TELEPHONE, CABLE TO BE LOCATED BY CONTACTING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE ALL RELATED WORK ACTIVITIES WITH OTHER TRADES AND REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER PRIOR TO COMMENCING.
- NUMERICAL VALUE ON THE LANDSCAPE QUANTITIES SPECIFIED ON THE PLAN TAKE PRECEDENCE OVER GRAPHIC REPRESENTATION. VERIFY ANY CONCERN/DISCREPANCY WITH LANDSCAPE ARCHITECT.
- ALL CONSTRUCTION AND PLANT MATERIAL LOCATION TO BE ADJUSTED ON SITE IF NECESSARY.
- ALL SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE CITY OF NOVI AND LANDSCAPE ARCHITECT.
- ALL LARGE TREES AND EVERGREENS TO BE STAKED, GUYED AND WRAPPED AS DETAIL SHOWN ON PLAN.
- PLANT BEDS TO BE DRESSED WITH MIN. 3" OF FINELY DOUBLE SHREDDED HARD BARK MULCH.
- DIG SHRUB PITS 1' LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2' LARGER THAN ROOT BALL. BACK FILL WITH ONE PART TOP SOIL AND ONE PART SOIL FROM
- REMOVE ALL TWINE, WIRE AND BURLAP FROM TREE AND SHRUB EARTH BALLS, AND FROM TREE TRUNKS.

- NATURAL COLOR FINELY SHREDDED HARDWOOD BARK MULCH REQUIRED FOR ALL PLANTINGS. 4" THICK BARK MULCH FOR TREES IN 4" DIA. CIRCLE WITH 3" PULLED AWAY FROM TRUNK. 3" THICK BARK MULCH FOR SHRUBS AND 2" THICK BARK MULCH FOR PERENNIALS.
- PLANT MATERIAL QUALITY & INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS.
- PROVIDE PEAT SOD FOR ALL NEW AND DISTURBED LAWN AREAS UNLESS NOTED OTHERWISE.
- ALL PLANTING AREAS TO BE PREPARED WITH APPROPRIATE SOIL MIXTURES AND FERTILIZER BEFORE PLANT INSTALLATION.
- PLANT TREES AND SHRUBS GENERALLY NO CLOSER THEN THE FOLLOWING DISTANCES FROM SIDEWALKS, CURBS AND PARKING STALLS:
 - SHADE TREES _____ 5 FT.
 - ORNAMENTAL AND EVERGREEN TREES _____ 10 FT.
 - GRASS, FINE SPRUCE, ETC., _____ 10 FT.
 - SHRUBS THAT ARE LESS THAN 1 FOOT TALL AND WIDE AT MATURITY _____ 2 FT.
- NO TREES OR EVERGREENS TO BE INSTALLED OVER ANY PROPOSED OR EXISTING UTILITY LINES AS SHOWN ON THE OVERALL LANDSCAPE PLAN. SEE ENGINEERING PLANS FOR LOCATION AND DETAILS.
- ALL LAWN AREAS AND LANDSCAPE BEDS TO BE FULLY IRRIGATED WITH A AUTOMATIC UNDERGROUND SYSTEMS. IRRIGATION SYSTEM TO HAVE SEPARATE ZONES FOR LAWN AREAS, PARKING ISLANDS, AND SHRUB BEDS WITH DIFFERENT CONTROL MOISTURE LEVEL ADJUSTMENT PER ZONE AS REQUIRED.

misc. notes:

- REFERENCE ENGINEERING PLANS FOR EXISTING AND PROPOSED FINAL UTILITIES, WALLS, AND FENCE LOCATIONS
- REFERENCE ENGINEERING PLANS FOR GRADING WITH MIN. 2' INTERVALS
- REFERENCE ENGINEERING PLANS FOR WOODLAND SURVEY OF EXISTING TREES OVER 8" INCLUDING PROPOSED PROTECTION FENCE LOCATIONS
- REFERENCE ENGINEERING PLANS FOR EXISTING SOILS PER USDA.

seal:



client:
**IVANHOE
MEADOWBROOK
LLC**

6689 Orchard Lake Road,
Suite 314
West Bloomfield, Michigan
48332
ph. (248) 626-6114

project:

**Beacon Hill
Park**
A planned Single Family
and Neighborhood
Commercial Retail

project location:
City of Novi, MI

12-Mile Road &
Meadowbrook Road

sheet title:
**Beacon Hill Meadows
Landscape Planting
Detail**

job no./issue/revision date:
LS15.010.06 SPA 6-26-2015
LS16.006.01 PSP 1-11-2016
LS16.006.04 PSP 4-13-2016

drawn by:
JP, KH

checked by:
FP

date:
1-4-2015

notice:
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The location and elevations of existing
underground utilities as shown on this
drawing are only approximate. No guarantee
is either expressed or implied as to the
completeness of accuracy. Contractor shall be
exclusively responsible for determining the
exact location and elevation prior to the start
of construction

project no.:
LS16.008.01

sheet no.:

PROPOSED STREET TREES TO BE LOCATED BETWEEN
WALK AND ROAD CURBS. NO TREES TO BE INSTALLED
OVER ANY EXISTING OR PROPOSED INGROUND UTILITIES.
SEE ENGINEERING PLANS FOR LOCATION.

LAWN AREAS TO RECEIVE NATIVE WILD FLOWER
SEED MIX ON FINISH GRADES. SEE SHT. LS-4 FOR
SEED MIX DETAILS

HATCHING DENOTES WOODS
AND VEGETATION TO REMAIN

DISTURBED LAWN AREAS TO
RECEIVE WETLAND SEED MIX ON
FINISH GRADES. SEE SHT. LS-6
FOR SEED MIX DETAILS

PROPOSED RELOCATED STREAM

proposed
pond
PROPOSED ADJACENT LANDSCAPE
PLANTINGS. SEE SHEET LS-3 FOR
DETAILS

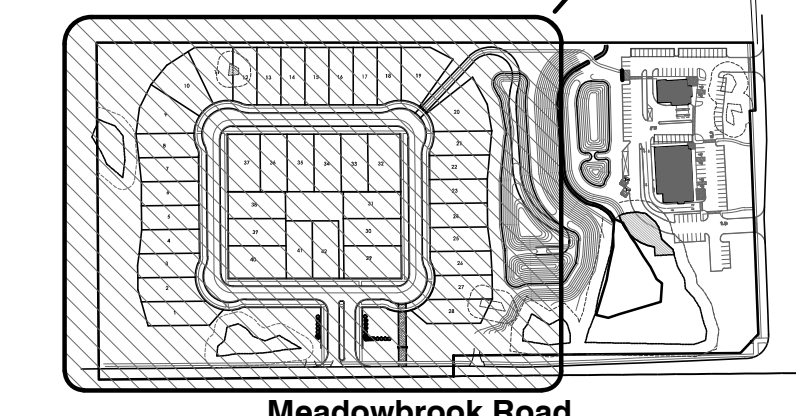
PROPOSED DETENTION POND
ACCESS DRIVE

HATCHING DENOTES
PROPOSED TREE/CREDITED
TOWARD TREE REPLACEMENT
REQUIREMENTS-SEE SHT. LS-6
AND LS-1 FOR DETAILS

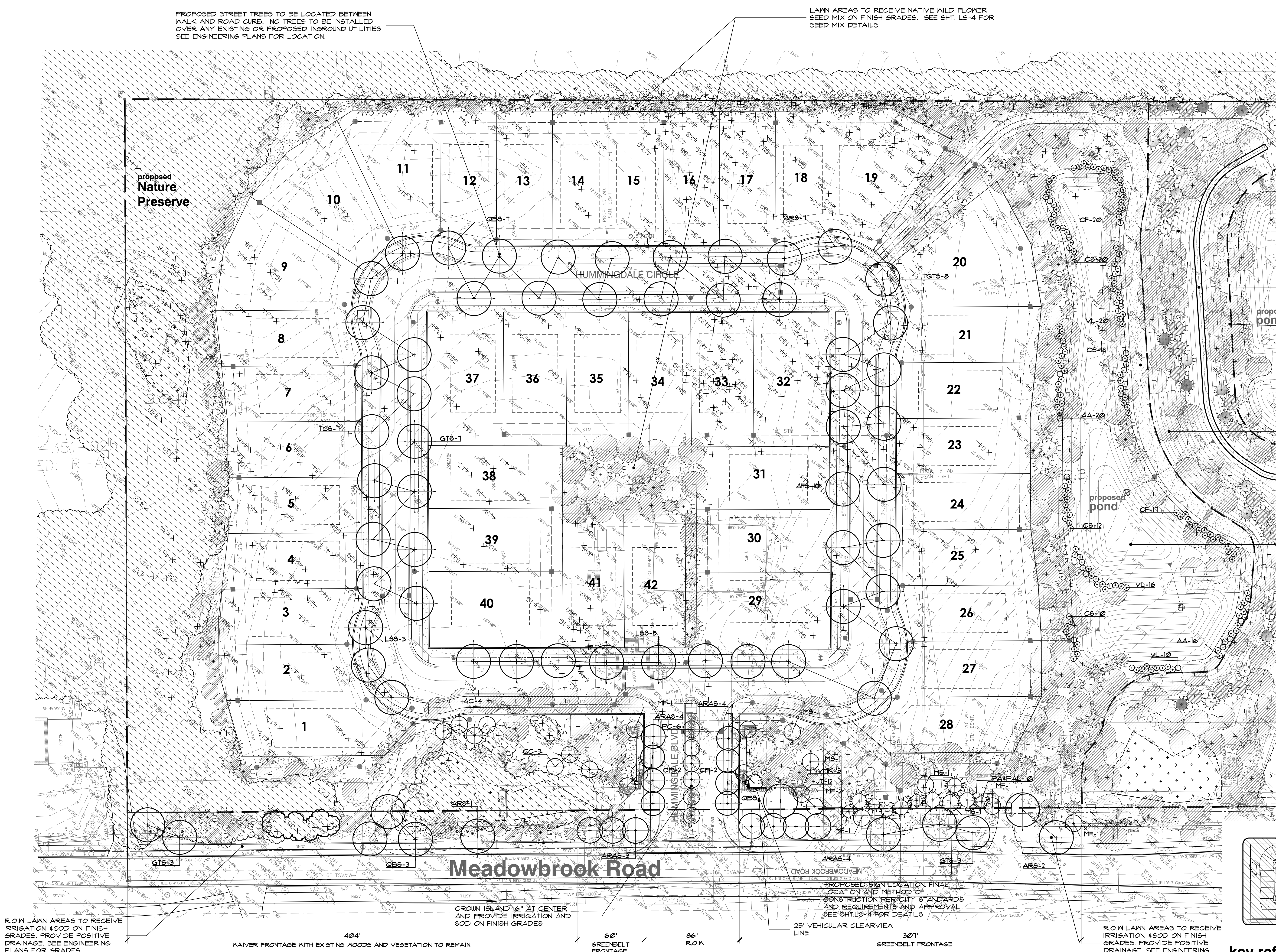
DETENTION BASIN - SEE ENGINEERING
PLANS FOR LOCATION, SIZE, SIDE
SLOPES, WATER ELEVATION, TOP
OF BANK AND DETAILS. LAWN
AREAS TO RECEIVE NATIVE WILD
FLOWER SEED MIX ON FINISH GRADES.
BASIN AREA BELOW HIGH WATER
ELEVATION TO RECEIVE DETENTION
POND SEED MIX AT A RATE OF 3 LBS.
PER 1000 SQ. FT. ON FINISH GRADES.
SEE SHT. LS-5 FOR SEED MIXTURE
DETAILS

LIMITS OF SINGLE FAMILY AND
TRAILHEAD LINE

2B



key reference map
NO SCALE



R.O.W LAWN AREAS TO RECEIVE
IRRIGATION & SOD ON FINISH
GRADES. PROVIDE POSITIVE
DRAINAGE. SEE ENGINEERING
PLANS FOR GRADES.

404'
WAIVER FRONTAGE WITH EXISTING WOODS AND VEGETATION TO REMAIN

CROWN ISLAND 16" AT CENTER
AND PROVIDE IRRIGATION AND
SOD ON FINISH GRADES

60'
GREENBELT FRONTAGE

26'
R.O.W

25' VEHICULAR CLEARVIEW
LINE

301'
GREENBELT FRONTAGE

R.O.W LAWN AREAS TO RECEIVE
IRRIGATION & SOD ON FINISH
GRADES. PROVIDE POSITIVE
DRAINAGE. SEE ENGINEERING
PLANS FOR GRADES.

2B Beacon Hill Meadows- landscape planting detail
SCALE: 1" = 40'-0"



client:
IVANHOE MEADOWBROOK LLC
6689 Orchard Lake Road,
Suite 314
West Bloomfield, Michigan
48332
ph. (248) 626-6114

project:
Beacon Hill Park
A Planned Single Family
and Neighborhood
Commercial Retail

project location:
City of Novi, MI

12-Mile Road &
Meadowbrook Road

sheet title:
**The Shoppes at
Beacon Hill Landscape
Planting Detail**

job no./issue/revision date:

LS15.010.06 SPA	6-26-2015
LS16.006.01 PSP	1-11-2016
LS16.006.04 PSP	4-13-2016

drawn by:
JP, KH

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FP

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1-4-2015

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project no:
LS16.008.01

sheet no:
LS-3 of 7

commercial retail landscape requirements:

greenbelt (12 Mile Road)	REQUIRED	PROVIDED
TOTAL LIN. FT. OF 12 MILE ROAD FRONTAGE	408'±	
ONE (1) 3" DECIDUOUS OR EVERGREEN TREE PER 35 LIN. FT.	11	12
THREE (3) SUBCANOPY TREE PER 40 LIN. FT.	10	15

detention	REQUIRED	PROVIDED
HIGH WATER PERIMETER	585'±	75%
70%-75% LARGE NATIVE SHRUBS ABOVE HIGH WATER BASIN RIM AREA		75%

parking lot trees (OFFICE-CATEGORY-1)		
PARKING SPACE AREA	17,483 SQ.FT.	
PARKING AREA FORMULA (17,483 SQ.FT. X .10 (10%) = 1,748 SQ.FT.)	1,748 SQ.FT.	
VEHICULAR ACCESS AREA	42,321 SQ.FT.	
VEHICULAR AREA FORMULA (42,321 SQ.FT. X .05 (5%) = 2,116 SQ.FT.)	2,116 SQ.FT.	
	REQUIRED	PROVIDED

TOTAL AREA OF INTERIOR LANDSCAPE ISLANDS AREA (1,748 SQ.FT. + 2,116 SQ.FT. = 3,864 SQ.FT.)	3,914 SQ.FT.	3,950 SQ.FT.
TOTAL NO. OF PARKING LOT TREES (3,914 SQ.FT. LANDSCAPE ISLANDS / 75 = 52-TREES)	52	30 (A)

perimeter parking lot trees		
TOTAL LIN. FT. OF PERIMETER PARKING	1,175'±	
ONE (1) 3" DECIDUOUS OR EVERGREEN TREE PER 35 LIN. FT.	33	16 (A)

building foundation		
BUILDING FOUNDATION LANDSCAPE AREA (412.47' (PERIMETER) X 8' = 3,299.74 SQ.FT.)	3,299.74 SQ.FT.	3,300 + SQ.FT.

12-Mile Road Street Tree		
TOTAL LIN. FT. OF COMMERCIAL 12 MILE ROAD FRONTAGE	408'	
ONE (1) 3" DECIDUOUS OR EVERGREEN TREE PER 35 LIN. FT. (408' / 35' = 11.6 TREES)	12	12
(A) LANDSCAPE WAIVER TO BE REQUESTED FOR THE REQUIRED TREE PLANTINGS		

residential landscape requirements:

greenbelt (Meadowbrook Road)	REQUIRED	PROVIDED
TOTAL LIN. FT. OF MEADOWBROOK ROAD FRONTAGE	366'± (*)	
ONE (1) 3" DECIDUOUS OR EVERGREEN TREE PER 35 LIN. FT.	10	10
ONE (1) SUBCANOPY TREE PER 20 LIN. FT.	18	22

boulevard island		
TOTAL LIN. FT. OF BOULEVARD ISLAND	1	
COMBINATION OF CANOPY TREES, SUBCANOPY TREES AND SHRUBS	75%	75%

detention		
HIGH WATER PERIMETER	1142.41'±	
70%-75% LARGE NATIVE SHRUBS ABOVE HIGH WATER BASIN RIM AREA		75%

* 856' TOTAL LIN. FT. SINGLE FAMILY FRONTAGE - 86' R.O.W AND 404' (WAIVER FOR EXISTING WOODLAND/VEGETATION TO BE SAVED) = 366'

street tree notes:

STREET TREES SHALL BE PLANTED 10' FROM ANY DRIVEWAYS, 4' FROM ANY CURBS AND SIDEWALKS (2' FOR SUBCANOPY TREES), 15' FROM OVERHEAD UTILITY LINES, 10' FROM ANY MAN HOLE OR FIRE HYDRANTS, AND 35' FROM THE INTERSECTION OF CURB LINES ON CORNER LOTS.

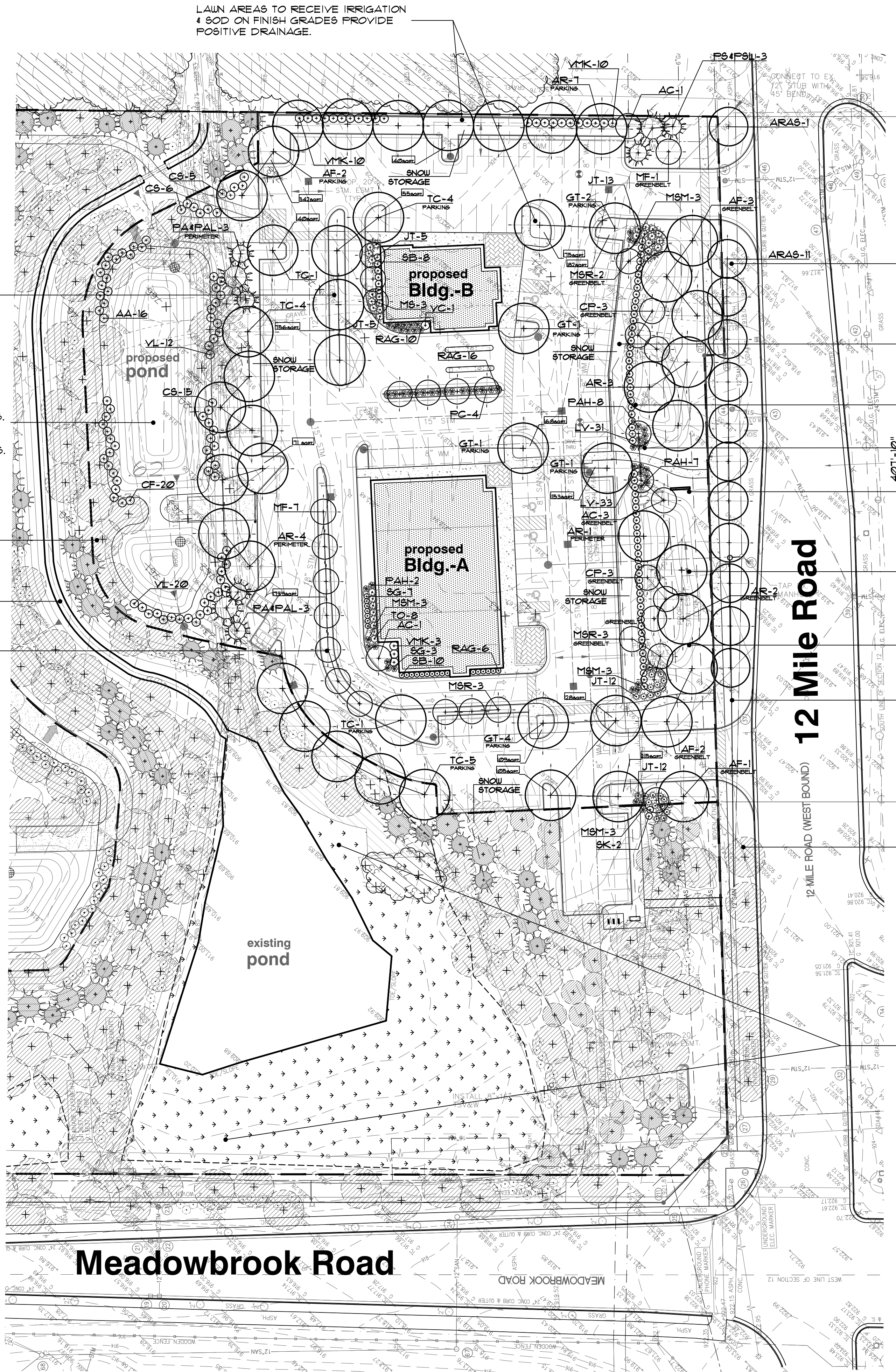
STREET TREES SHALL HAVE THE FOLLOWING CHARACTERISTICS: 2 1/2" CALIFERN, NO. 1 GRADE B 4B, NORTHERN GROUN PIER CURRENT AAN STANDARDS, AND INSTALLED ACCORDING TO ACCEPTED PLANTING PROCEDURES.

STREET TREES SHALL HAVE A CENTRAL LEADER AND RADIAL BRANCHING STRUCTURE. ANY BRANCHES THAT MAY DEVELOP INTO "V" CROTCHES SHALL BE PRUNED SO AS NOT TO BECOME DOMINANT BRANCHES.

THE BRANCHES ON CANOPY TREES SHALL BE LIMBED UP 14' ON THE SIDE OF THE STREET AND 10' ON THE NON-STREET SIDE.

street tree requirements:

PER LOT WIDTH, THE FOLLOWING STREET TREE PLANTINGS SHALL OCCUR:	LOT FRONTAGE	conditions	required	provided
4'10" AT LEAST 1 TREE	LOTS WITH FRONTAGE <10'		42	42
2'10" AT LEAST 2 TREES	LOTS WITH FRONTAGE >10'		-	-
2'10" AT LEAST 3 TREES	LOTS WITH FRONTAGE >105'		4	12
MINIMUM STREET TREE SIZE REQUIRED 2 1/2" CALIFERN AND MIN. 35' O.C. SPACING	OPEN SPACE FRONTAGE, CUL-DE-SAC, AND BLVD. ISLAND			0
	ONE (1) DECIDUOUS TREE PER 35' BETWEEN CURB AND SIDEWALK (SINGLE FAMILY MEADOWBROOK R.O.W. FRONTAGE = 110' / 35' = 22 TREES)		770'	22
				18 + 5 EXISTING TREE
	TOTALS		76	80



CROWN ISLAND 16" AT CENTER AND PROVIDE IRRIGATION AND SOD ON FINISH GRADES

DETENTION BASIN - SEE ENGINEERING PLANS FOR LOCATION, SIZE, SIDE SLOPES, WATER ELEVATION, TOP OF BANK AND DETAILS. LAWN AREAS TO RECEIVE NATIVE WILD FLOWER SEED MIX ON FINISH GRADES. BASIN AREA BELOW HIGH WATER ELEVATION TO RECEIVE DETENTION POND SEED MIX AT A RATE OF 3 LBS. PER 1000 SQ. FT. ON FINISH GRADES. SEE SHT. LS-5 FOR SEED MIXTURE DETAILS

HATCHING DENOTES PROPOSED TREE/CREDITED TOWARD TREE REPLACEMENT REQUIREMENTS. SEE SHT. LS-6 AND LS-7 FOR DETAILS

PROPOSED RELOCATED STREAM

CROWN ISLAND 12" AT CENTER AND PROVIDE IRRIGATION AND SOD ON FINISH GRADES

PROPOSED STREET TREES TO BE LOCATED BETWEEN WALK AND ROAD CURB. NO TREES TO BE INSTALLED OVER ANY EXISTING OR PROPOSED INGROUND UTILITIES. SEE ENGINEERING PLANS FOR LOCATION.

LAWN AREAS BETWEEN PARKING AND LANDSCAPE BEDS TO RECEIVE IRRIGATION & SOD ON FINISH GRADES PROVIDE POSITIVE DRAINAGE.

PROPOSED PRIVET SHRUBS TO BE ALLOWED TO "KNIT" TOGETHER AND A HEDGE. MAINTAIN HEIGHT AT 36"

PROVIDE METAL EDGING BETWEEN LAWN AREAS AND LANDSCAPE BEDS.

PROPOSED SIGN LOCATION, FINAL LOCATION AND METHOD OF CONSTRUCTION PER CITY STANDARDS AND REQUIREMENTS AND APPROVAL

2 1/2' TO 3 1/2' HIGH EARTHBERM, MAXIMUM 1 ON 3 SLOPE. LAWN AREAS TO RECEIVE IRRIGATION & SOD ON FINISH GRADES, PROVIDE POSITIVE DRAINAGE.

LAWN AREAS TO RECEIVE IRRIGATION & SOD ON FINISH GRADES PROVIDE POSITIVE DRAINAGE.

R.O.W LAWN AREAS TO RECEIVE IRRIGATION & SOD ON FINISH GRADES. PROVIDE POSITIVE DRAINAGE. SEE ENGINEERING PLANS FOR GRADES.

25' VEHICULAR CLEARVIEW LINE

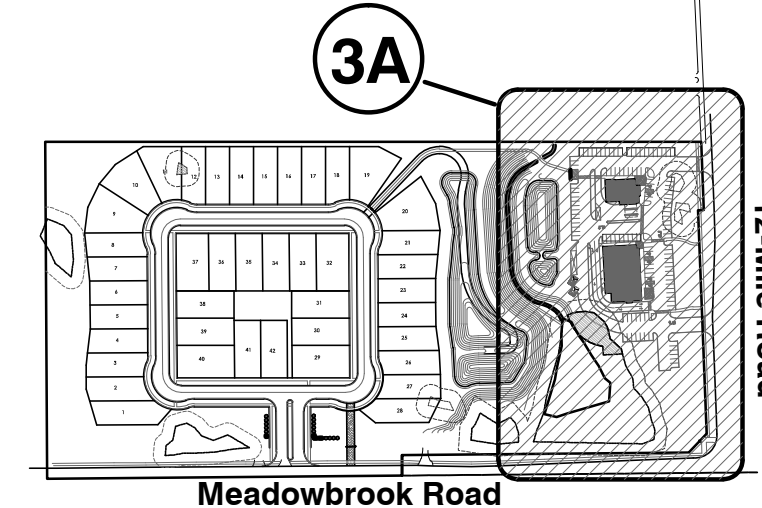
EXISTING WETLAND - INVASIVE SPECIES TO BE TREATED AND HABITANT RESTORATION INCLUDING NATIVE WILDFLOWER SEED MIX TO BE PROVIDED TO IMPROVE PLANT SPECIES DIVERSITY. SEE WETLAND PLANS PREPARED BY KING & MACGREGOR ENVIRONMENTAL INC. FOR DETAILS



3B bike rack
(1-CONDITIONS)
MANUFACTURER:
DUMOR SITE FURNISHINGS
P.O. BOX 142, MIFFLINTOWN, PA 17059
WEB: WWW.DUMOR.COM
PH. 800-598-4018
MODEL No. 130-20-51
FINISH: BLACK



3C park bench seating
(1-CONDITIONS)
6' WIDE BENCH SEAT BY DUMOR, INC. MODEL NO. 34-6060D (S-2) RECYCLED PLASTIC POLYESTER POWDER-COATED FRAME OR EQUAL
MANUFACTURER:
DUMOR SITE FURNISHINGS
P.O. BOX 142, MIFFLINTOWN, PA 17059
WEB: WWW.DUMOR.COM
PH. 800-598-4018



key reference map
NO SCALE

3A The Shoppes at Beacon Hill landscape planting detail
SCALE: 1" = 40'-0"

entrance plant material list

key	5A	botanical name	common name	size	cost	totals
		SHRUBS				
PO	4	PHYSOCARPUS O. MONLO	DIABOLO NINEBARK	3' BB	150	1200
JT	19	JUNIPERUS S. TAMARISAFOLIA	TAM'S JUNIPER	24" BB	150	1050
BW	52	BUXUS M. WINTER GEM	WINTER GEM BOXWOOD	18" BB	150	12600
TE	34	TAXUS XM. EVERLOW	EVERLOW YEW	24" BB	150	11700
		PERENNIALS AND GRASSES				
RFG	12	RUDBECKIA F. GOLDSTURN	BLACK EYED SUSAN	9" CONT	15	180
PAH	8	FENISETUM ALOPECUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	9" CONT	15	120
M9G	1	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT MAIDEN GRASS	9" CONT	15	15
						TOTAL 15,165

City of Novi landscape notes:

- GENERAL NOTES:
- 1) PLANT MATERIALS TO BE INSTALLED ACCORDING TO THE CITY OF NOVI AND CURRENT AMERICAN ASSOCIATION OF NURSERYMEN'S STANDARDS.
 - 2) PLANT MATERIALS TO BE GUARANTEED FOR 2 YEARS. REPLACE FALLING MATERIAL WITHIN 1 YEAR, OR THE NEXT APPROPRIATE PLANTING PERIOD.
 - 3) PLANT MATERIALS TO BE OF PREMIUM QUALITY, NO. 1 GRADE NORTHERN NURSERY GROWN, IN HEALTHY CONDITION, FREE OF PESTS AND DISEASES.
 - 4) MULCH IS TO BE NATURAL COLORED, FINELY SHREDDED HARDWOOD BARK OF 4" THICK BARK MULCH FOR TREES IN 4" DIA. CIRCLE W/3" PULLED AWAY FROM TRUNK, 3" THICK BARK MULCH FOR SHRUBS AND 2" THICK BARK MULCH FOR PERENNIALS.
 - 5) CALL MISS DIG AT 1-800-482-1111 PRIOR TO ANY CONSTRUCTION.
 - 6) DATE OF INTENDED LANDSCAPE INSTALLATION TO BE FALL 2005.

- DECIDUOUS & EVERGREEN TREE:
- 1) TREE SHALL BE INSTALLED SAME RELATIONSHIP TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 6" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.
 - 2) DO NOT PRUNE TERMINAL LEADER, PRUNE ONLY DEAD OR BROKEN BRANCHES.
 - 3) REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS THAT ARE UNSIGHTLY AND COULD CAUSE GIRDLING.
 - 4) REMOVE TREE STAKES, GUY WIRES AND TREE WRAP AFTER ONE WINTER SEASON.

- SHRUB:
- 1) SHRUB SHALL BE INSTALLED SAME RELATIONSHIP TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 4" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.
 - 2) DO NOT PRUNE TERMINAL LEADER, PRUNE ONLY DEAD OR BROKEN BRANCHES.
 - 3) REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS THAT ARE UNSIGHTLY AND COULD CAUSE GIRDLING.

- TREE PROTECTION:
- 1) EITHER PLASTIC OR WOOD ORANGE SNOW FENCING SHALL BE INSTALLED AT OR BEYOND THE DRIFLINE, UNLESS MORE SUBSTANTIAL FENCING IS REQUIRED.
 - 2) STAKES SHALL BE METAL "T" POLES SPACED NO FURTHER THAN 5' ON CENTER.
 - 3) FENCING SHALL NOT BE INSTALLED CLOSER TO THE TREE THAN THE DRIFLINE OF THOSE TREES TO BE SAVED. SPECIAL CIRCUMSTANCES SHALL BE REVIEWED BY THE CITY.
 - 4) FENCING SHALL BE ERECTED PRIOR TO CONSTRUCTION. THE CITY SHALL BE NOTIFIED ONCE THE FENCING IS INSTALLED FOR INSPECTION.
 - 5) UNDER NO CIRCUMSTANCES SHALL THE PROTECTIVE FENCING BE REMOVED WITHOUT PROPER APPROVAL FROM THE CITY.

- 6) NO PERSON SHALL CONDUCT ANY ACTIVITY WITHIN THE AREAS PROPOSED TO REMAIN THIS SHALL INCLUDE, BUT NOT LIMITED TO:
 - a. NO SOLVENTS OR CHEMICALS WITHIN THE PROTECTED AREAS.
 - b. NO BUILDING MATERIALS OR CONSTRUCTION EQUIPMENT WITHIN THE PROTECTED AREAS.
 - c. NO GRADE CHANGES, INCLUDING FILL, WITHIN THE PROTECTED AREAS.
 - d. NO REMOVAL OF VEGETATION FROM THE GROUND UP WITHOUT PERMISSION FROM THE PROPER REVIEWING AUTHORITY, INCLUDING THE WOODLANDS REVIEW BOARD.
 - e. ANY REQUIRED SWALE NEEDS TO BE DIRECTED AROUND THE PROTECTED AREAS. IN INSTANCES WHERE SWALES ARE APPROVED THRU A PROTECTED AREA, THE SWALES NEED TO BE HAND DUG. MACHINERY OF ANY KIND IS PROHIBITED.
- 7) REGULATED WOODLANDS OR REGULATED TREES ADJACENT TO THE PROPERTY ARE ALSO REQUIRED TO BE PROTECTED WHETHER OR NOT THEY ARE SHOWN ON THE PLAN.

native wildflower seed mix:

- Mesic Prairie Mix:**
A widely adaptable mix recommended for areas of medium soil texture in full sun and partial shade conditions. The best mix to use to replace large lawn areas in commercial landscaping. This mix has a combination of plants that are adapted to moist conditions, but will tolerate drought once established.
- 30% Native Grasses and Sedges:** will contain at least four of the following species:
 Andropogon gerardii (Big Bluestem)
 Carex bicknelli (Copper Oval Sedge)
 Elymus canadensis (Canada Wild Rye)
 Panicum virgatum (Switchgrass)
 Schizachyrium scoparium (Little Bluestem)
 Sorghastrum nutans (Indian Grass)

- 20% Native Wildflowers:** will contain at least fourteen of the following species:
 Aster novae-angliae (New England Aster)
 Aster pilosus (Heath Aster)
 Coreopsis tripteris (Tall Coreopsis)
 Baptisia leucantha (White False Indigo)
 Echinacea purpurea (Purple Coneflower)
 Eryngium yuccifolium (Rattlesnake Master)
 Helopsis helianthoides (Ox Eye Sunflower)
 Liatris aspera (Peach Blazing Star)
 Liatris spicata (Dense Blazing Star)
 Monarda fistulosa (Bergamot)
 Physostegia virginiana (Obedient Plant)
 Pycnanthemum virginianum (Mountain Mint)
 Rattisia parviflora (Yellow Coneflower)
 Rudbeckia hirta (Black-Eyed Susan)
 Rudbeckia laciniata (Green-headed Coneflower)
 Silphium laciniatum (Prairie Dock)
 Solidago altissima (Tall Goldenrod)
 Solidago graminifolia (Lance-leaved Goldenrod)
 Solidago rigida (Stiff Goldenrod)
 Tradescantia ohioensis (Spiderwort)
 Verbena urticifolia (White Vervain)

- 50% Tropical Grasses:** will contain the following species:
 Avena sativa (Seed Oats)
 Lolium multiflorum (Annual Rye)
- Recommended Seed Rate: 30lb/acre**

FPA
FELINO A. PASCUAL
 and ASSOCIATES
 Community Land Planner and registered Landscape Architect
 24333 Orchard Lake Rd, Suite G
 Farmington Hills, MI 48336
 ph. (248) 557-5588
 fax. (248) 557-5416

client:
IVANHOE MEADOWBROOK LLC
 6689 Orchard Lake Road,
 Suite 314
 West Bloomfield, Michigan
 48332
 ph. (248) 626-6114

project:
Beacon Hill Park
 A planned Single Family and Neighborhood Commercial Retail

project location:
 City of Novi, MI
 12-Mile Road &
 Meadowbrook Road

sheet title:
ENTRANCE PLANTINGS, ENTRANCE SIGN & WALL MONUMENT

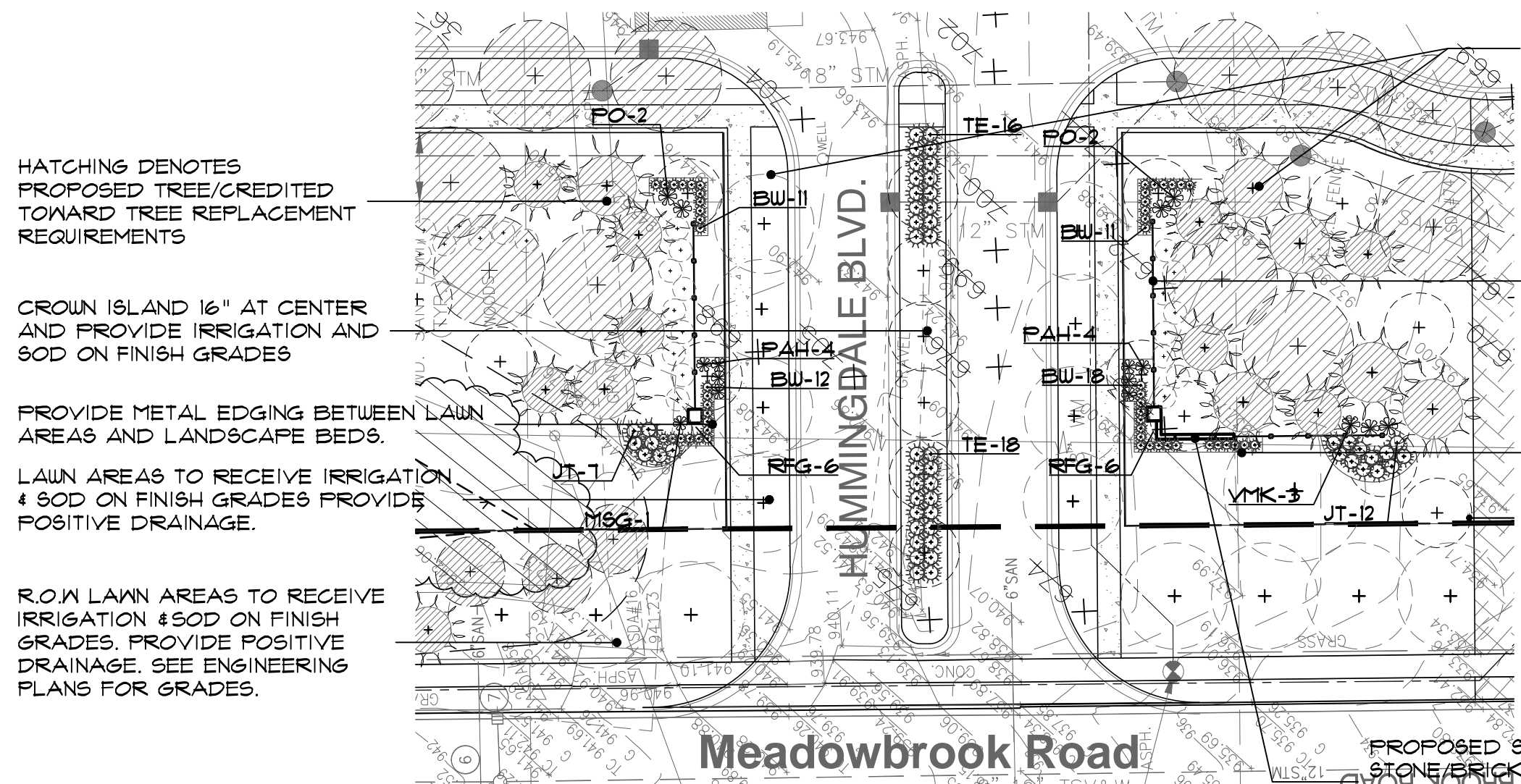
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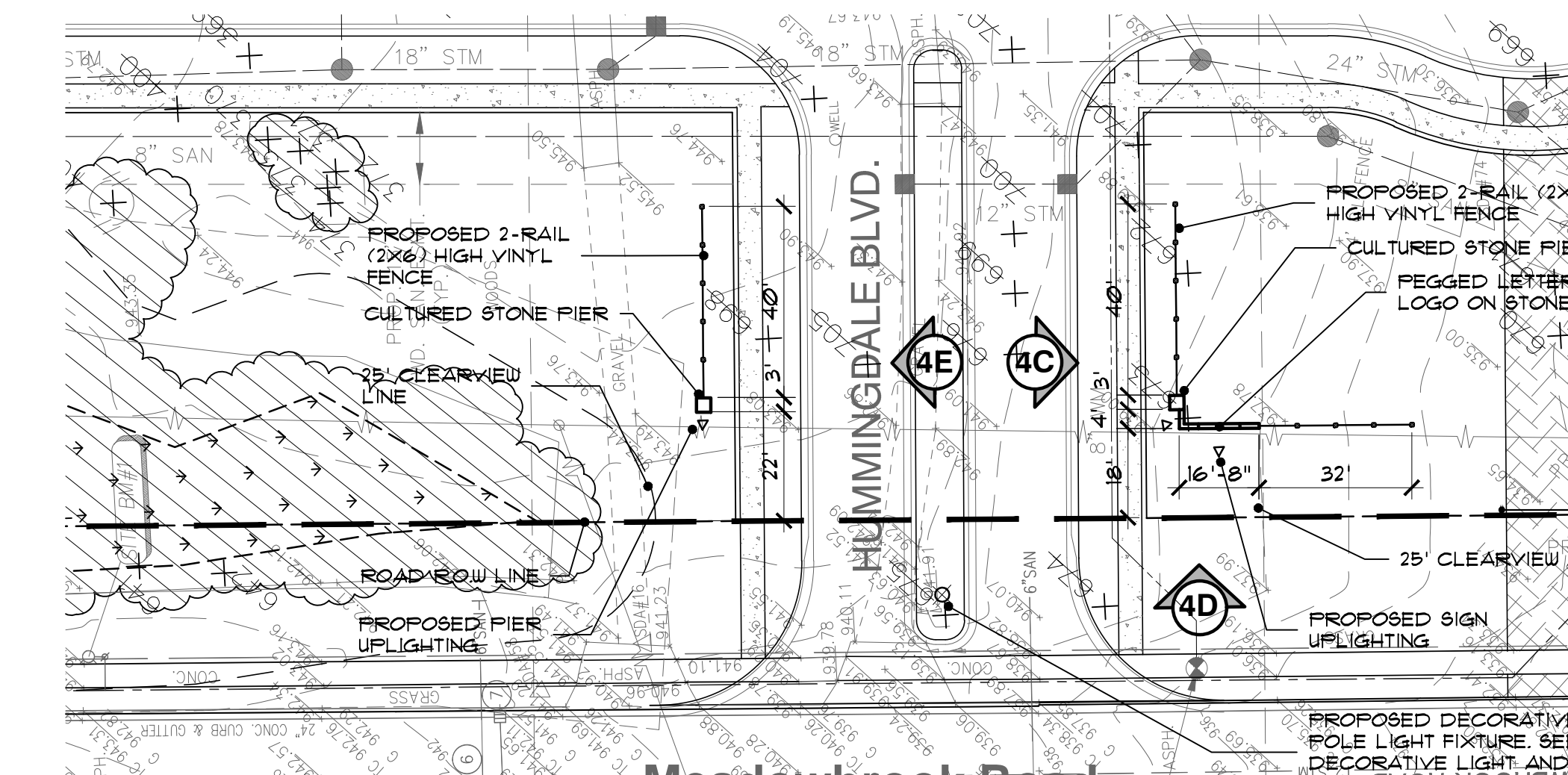
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entrance -sign notes:
 1. LOCATE AND STAKE ALL EXISTING AND PROPOSED UTILITIES PRIOR TO CONSTRUCTION. COORDINATE ANY ADJUSTMENTS WITH LANDSCAPE ARCHITECT.
 2. ALL ENTRY WALL LIGHTING SHALL BE CONTROLLED WITH A "PHOTO-EYE" SWITCH. ALL LIGHTING SHALL BE SHIELDED FROM PUBLIC ROW'S AND ADJACENT PROPERTIES.
 3. VERIFY SOIL BEARING CAPACITY PRIOR TO ENTRY SIGN MONUMENT & PIER CONSTRUCTION. IF SOIL BEARING CAPACITY FALLS BELOW STANDARD REQUIREMENTS, CONSULT STRUCTURAL ENGINEER FOR RECOMMENDATION OF FINAL ENTRY MONUMENT & PIER FOOTING DESIGN.
 4. SIGNAGE TEXT AND LOGO TO BE METAL OR FRAMING DIMENSIONAL LETTERS. PRIOR TO INSTALLATION, PERMITS TO BE OBTAINED PER CITY OF NOVI REQUIREMENTS, STANDARDS AND APPROVALS.

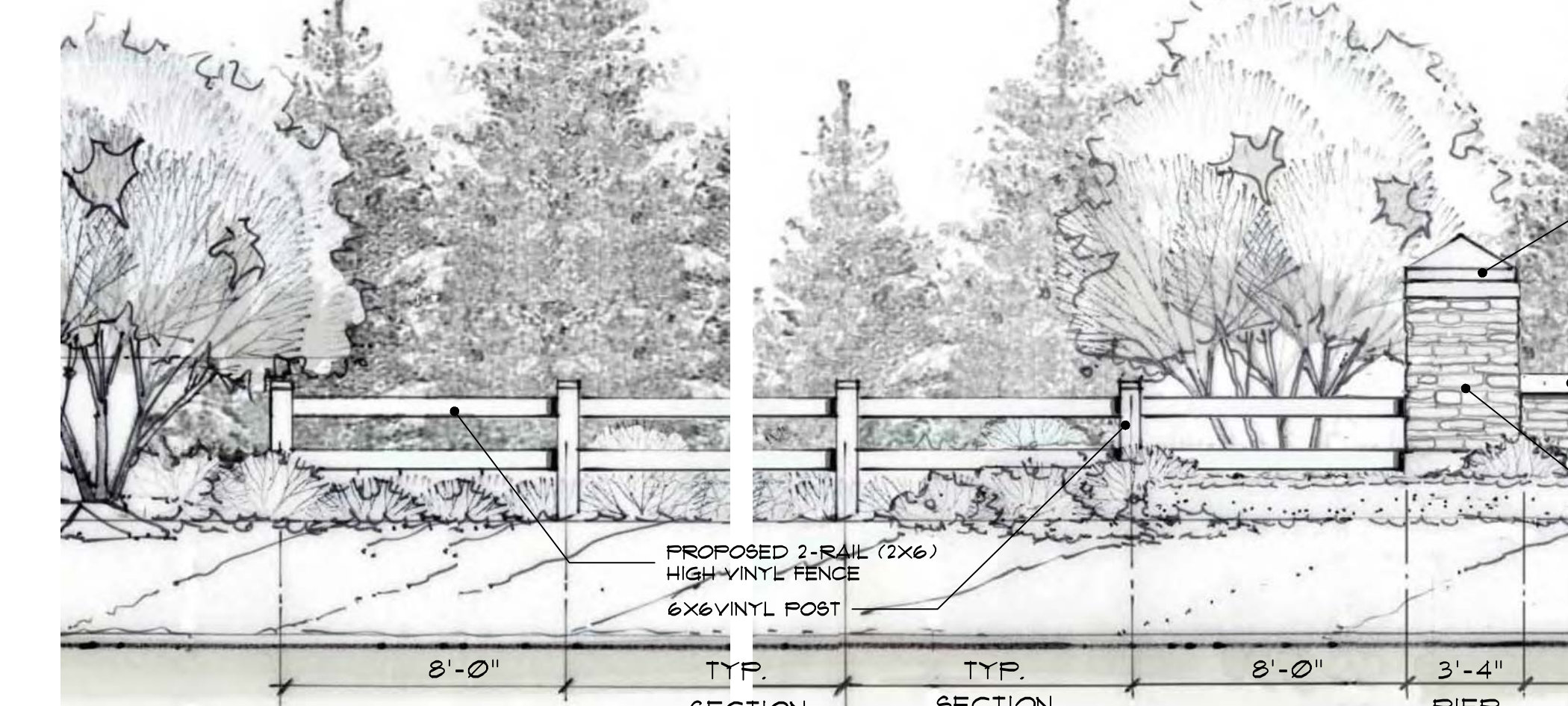
project no:
LS16.008.01
 sheet no:
LS-4 of 7



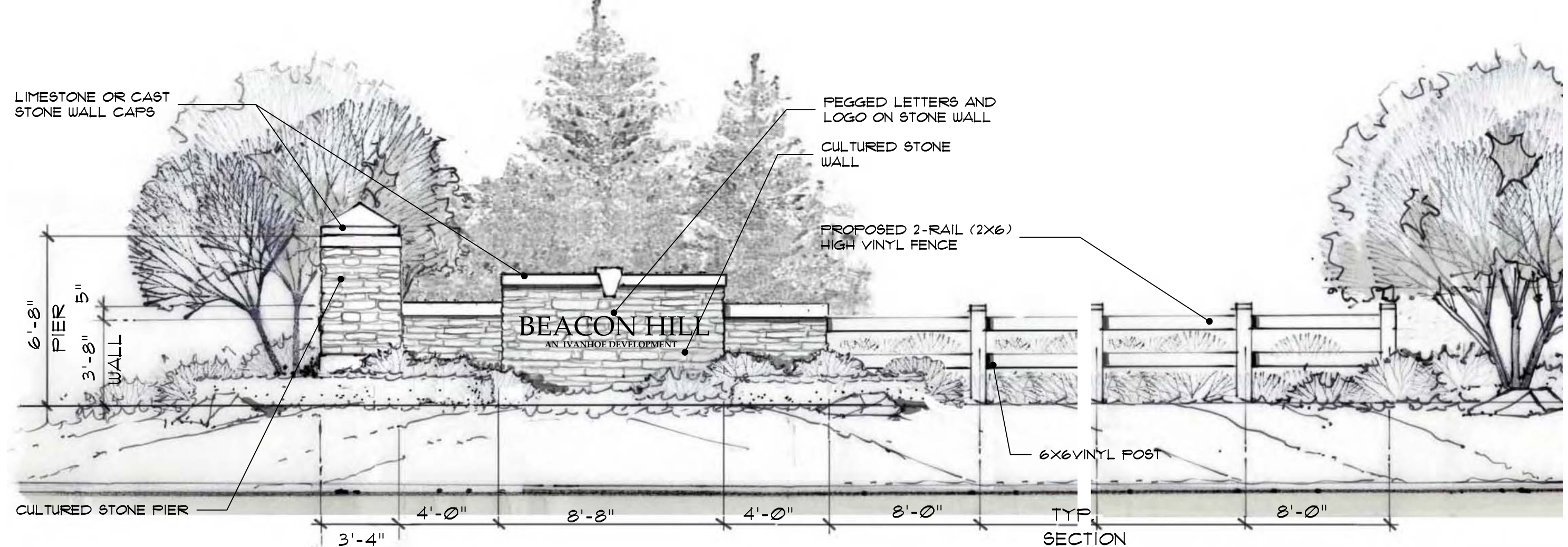
4A entrance planting details
 SCALE: 30'=1'-0"



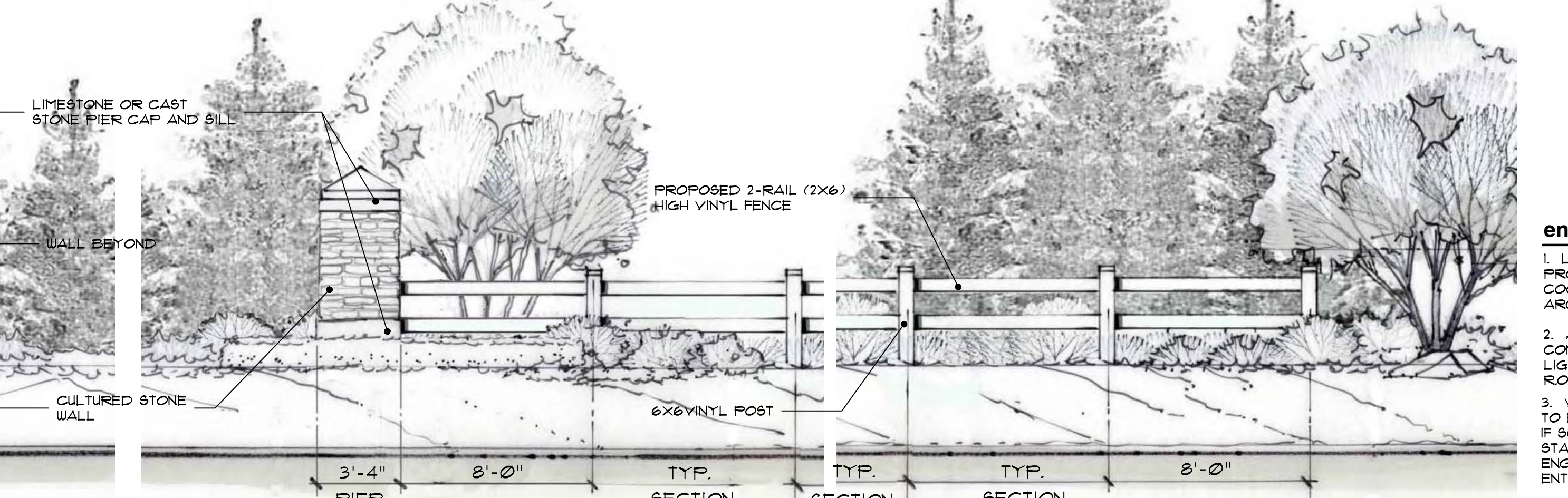
4B entry signage and wall monument site plan
 SCALE: 30'=1'-0"



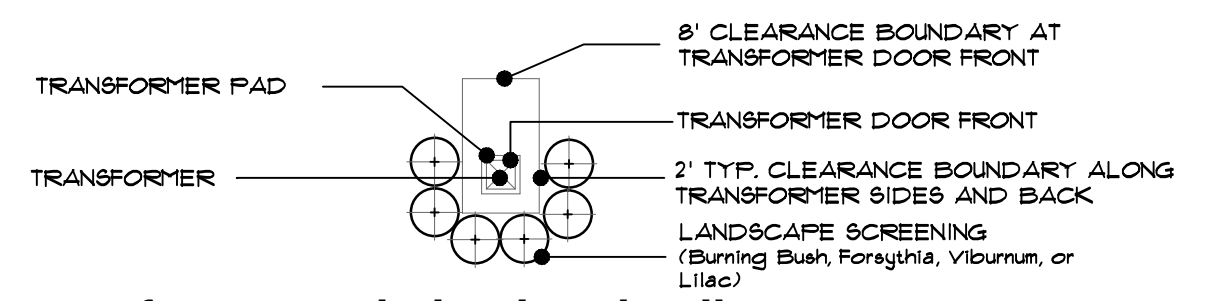
4C entrance monument elevation view
 SCALE: 1/4"=1'-0"



4D entrance monument elevation view
 SCALE: 1/4"=1'-0"



4E entrance monument elevation view
 SCALE: 1/4"=1'-0"



transformer pad planting detail
 SCALE 1'=2'-0"

A MINIMUM OF 2' SEPARATION BETWEEN TRANSFORMER AND FULL GROWN SHRUBS AND TREES. GROUND COVERS ALLOWED UP TO TRANSFORMER PAD IF MAINTAINED BELOW 4" FULL GROWTH. IF TRANSFORMER FACES TOWARDS THE HOUSE, THEN THE SAME CONDITIONS EXIST. NO FULL GROWTH IN FRONT OF THE TRANSFORMER FOR AT LEAST A MINIMUM OF 8'. THERE ARE NO WAIVERS GRANTED TO THE ABOVE CONDITION. DETAIL PER THE DETROIT EDISON COMPANY SERVICE PLANNING DEPARTMENT (9-11-98)

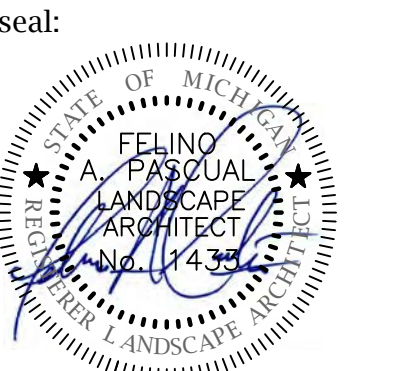
SEE ENGINEERING PLANS FOR PROPOSED LOCATIONS, TOTAL NUMBER OF TRANSFORMERS AND FINAL LOCATION PER DETROIT EDISON REQUIREMENTS.



4F sign & pier uplighting detail
 (3-CONDITION)
 MANUFACTURER:
 COPPER LIGHTING OR EQUAL
 GRANVILLE BUSINESS PARK, BLDG. A
 1121 HIGHWAY 14 SOUTH
 PEACHTREE, GA 30269
 PH. 770-486-4800
 MODEL: SF FALCON OR EQUAL
 (150W METAL HALIDE)



4G decorative light and pole
 (1-CONDITIONS)
 DECORATIVE POLE AND STREET LIGHTS MANUFACTURED BY HALOPANE
 LIGHT FIXTURE: WASHINGTON SERIES-ACRYLIC MODEL NO. AW100HF12B5DNB OR EQUAL
 POLE: WADSWORTH SERIES MODEL NO. AW100HF12B5DNB OR EQUAL
 POLE HIGH: 12' HIGH
 FINISH: BLACK
 POLE DIAMETER: 5"
 POLE BASE: 12"



client:
**IVANHOE
 MEADOWBROOK
 LLC**
 6689 Orchard Lake Road,
 Suite 314
 West Bloomfield, Michigan
 48332
 ph. (248) 626-6114

project:
**Beacon Hill
 Park**
 A planned Single Family
 and Neighborhood
 Commercial Retail

project location:
 City of Novi, MI

12-Mile Road &
 Meadowbrook Road

sheet title:
**Beacon Hill Meadows
 tree replacement
 planning detail**

job no./issue/revision date:
 LS15.010.06 SPA 6-26-2015
 LS16.006.01 PSP 1-11-2016
 LS16.006.04 PSP 4-13-2016

drawn by:
JP, KH
 checked by:
FP
 date:
1-4-2015

notice:
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 and Associates

Do Not scale drawings. Use
 figured dimensions only

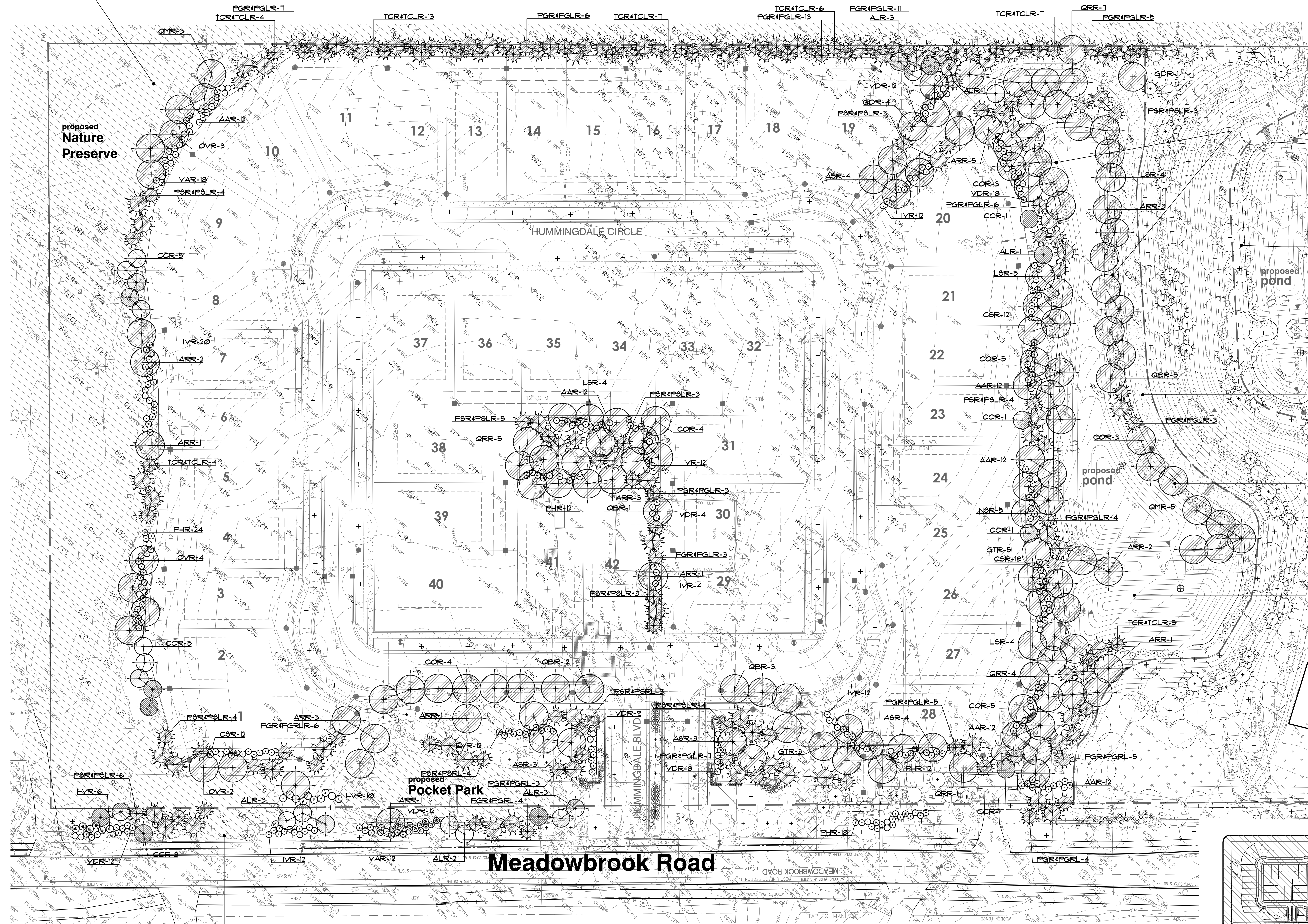


The location and elevations of existing
 underground utilities as shown on this
 drawing are only approximate. No guarantee
 is either expressed or implied as to the
 completeness of accuracy. Contractor shall be
 exclusively responsible for determining the
 exact location and elevation prior to the start
 of construction

project no:
LS16.008.01

sheet no:
LS-6 of 7

HATCHING DENOTES WOODS
 AND VEGETATION TO REMAIN



LAWN AREAS TO RECEIVE
 NATIVE WILD FLOWER SEED
 MIX ON FINISH GRADES. SEE
 SHT. LS-4 FOR SEED MIX DETAILS

PROPOSED ADJACENT LANDSCAPE
 PLANTINGS. SEE SHEET LS-7 FOR
 DETAILS

PROPOSED DETENTION POND
 ACCESS DRIVE

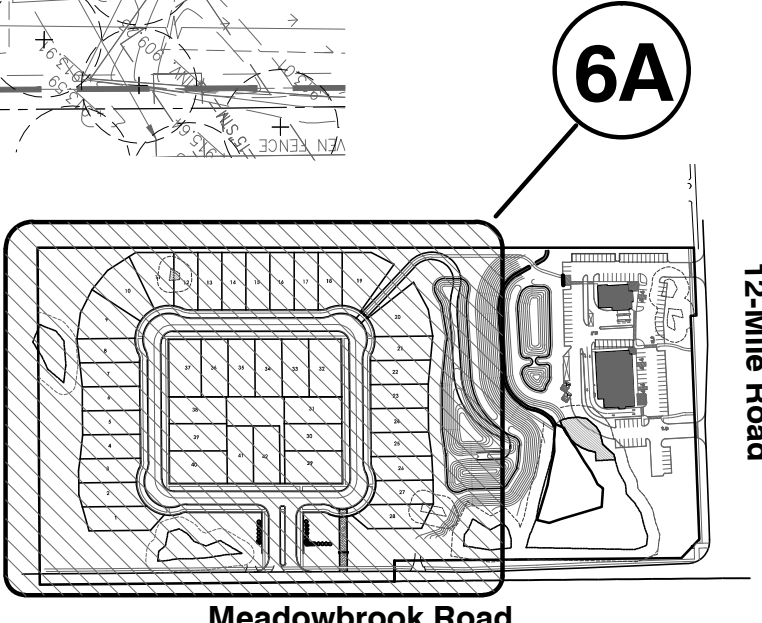
HATCHING DENOTES
 PROPOSED TREE/CREDITED
 TOWARD TREE REPLACEMENT
 REQUIREMENTS

DETENTION BASIN - SEE ENGINEERING
 PLANS FOR LOCATION, SIZE, SIDE
 SLOPES, WATER ELEVATION, TOP
 OF BANK AND DETAILS. LAWN
 AREAS TO RECEIVE HYDROSEED
 ON FINISH GRADES. BASIN AREA
 BELOW HIGH WATER ELEVATION TO
 RECEIVE DETENTION POND SEED MIX
 AT A RATE OF 3 LBS. PER 1000
 SQ. FT. ON FINISH GRADES. SEE SHT.
 LS-5 FOR SEED MIXTURE DETAILS

R.O.W. LAWN AREAS TO RECEIVE IRRIGATION
 #50D ON FINISH GRADES. PROVIDE POSITIVE
 DRAINAGE. SEE ENGINEERING PLANS FOR GRADES.

6A Beacon Hill Meadows- tree replacement planting detail
 SCALE: 1" = 40'-0"

key reference map
 NO SCALE



Beacon Hill Park Ivanhoe Companies



COLONIAL STREETSCAPE
SCALE 1/4" = 1'-0"



RANCH STREETSCAPE
SCALE 1/4" = 1'-0"



Issued for:
 OWNER REVIEW 10 DEC. 15
 PSP SUBMITTAL 11 JAN. 16

project:

Proposed Outparcel Building 'B' at
Beacon Hill Park
 NEC 12 Mile & Meadowbrook Rd.
 Novi, Michigan



32600 TELEGRAPH ROAD
 SUITE 250
 BINGHAM FARMS, MICHIGAN
 48026-2404
 PH 248.540.7700 FX 248.540.2710
 www.rogvooy.com



drawing:
Building 'B'
Building Elevations & Floor Plan

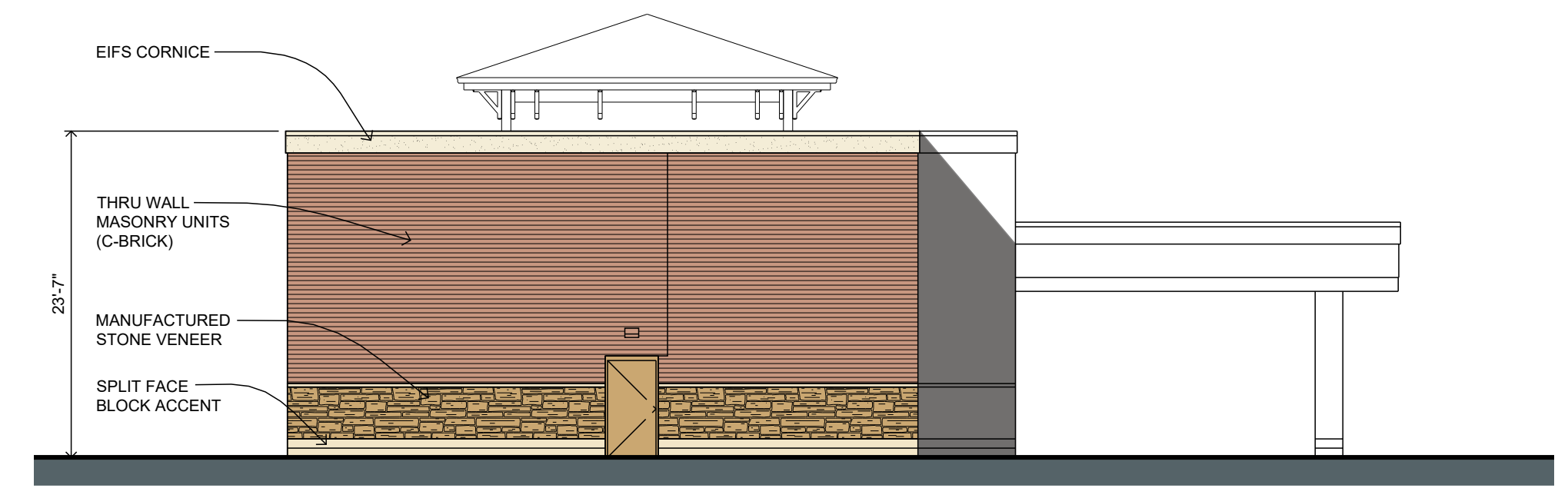
DO NOT SCALE DRAWING

issue date:
 drawn: KL
 checked: MD
 approved: MD

file number: 14051

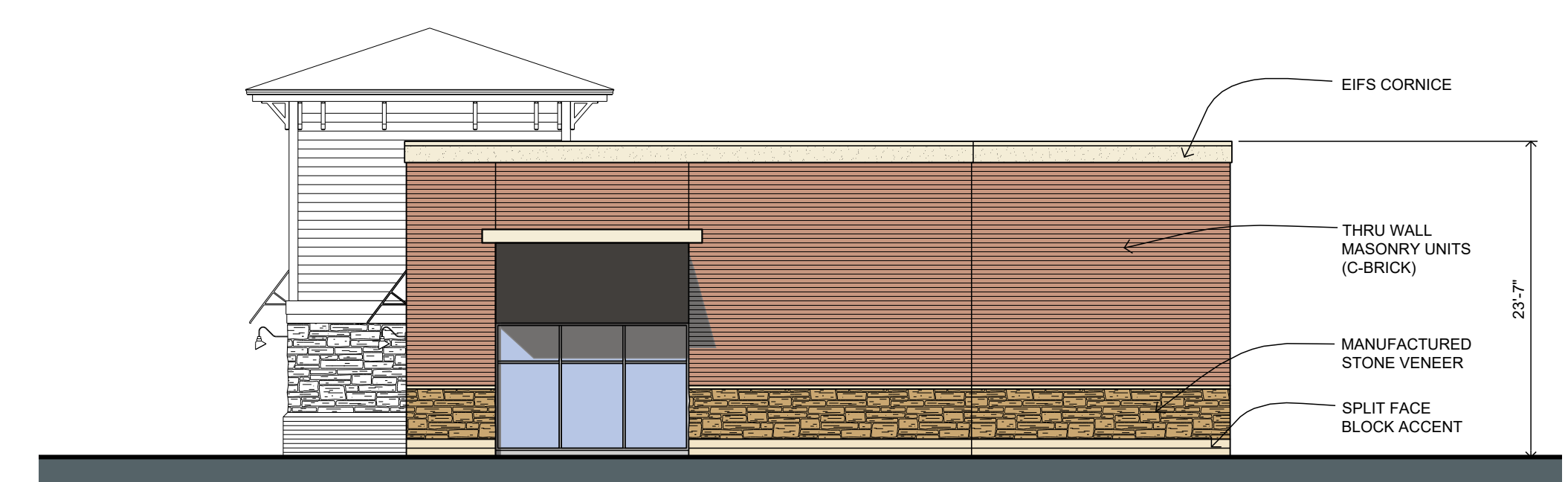
sheet:

A-2



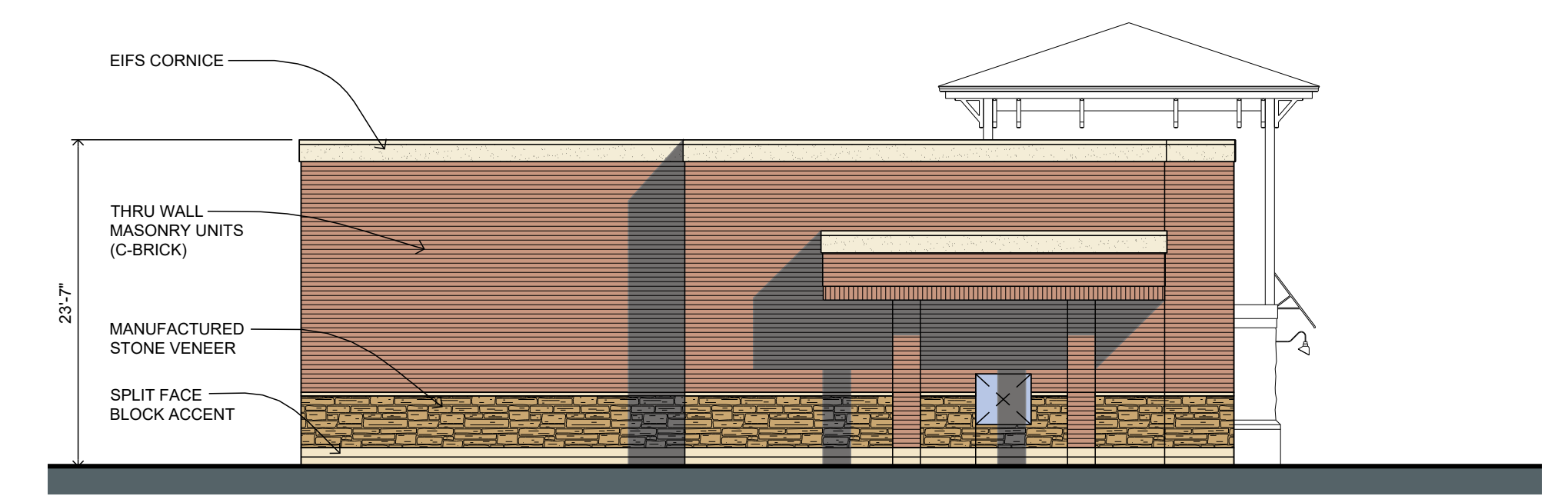
North Elevation

Scale: 3/32"=1'-0"



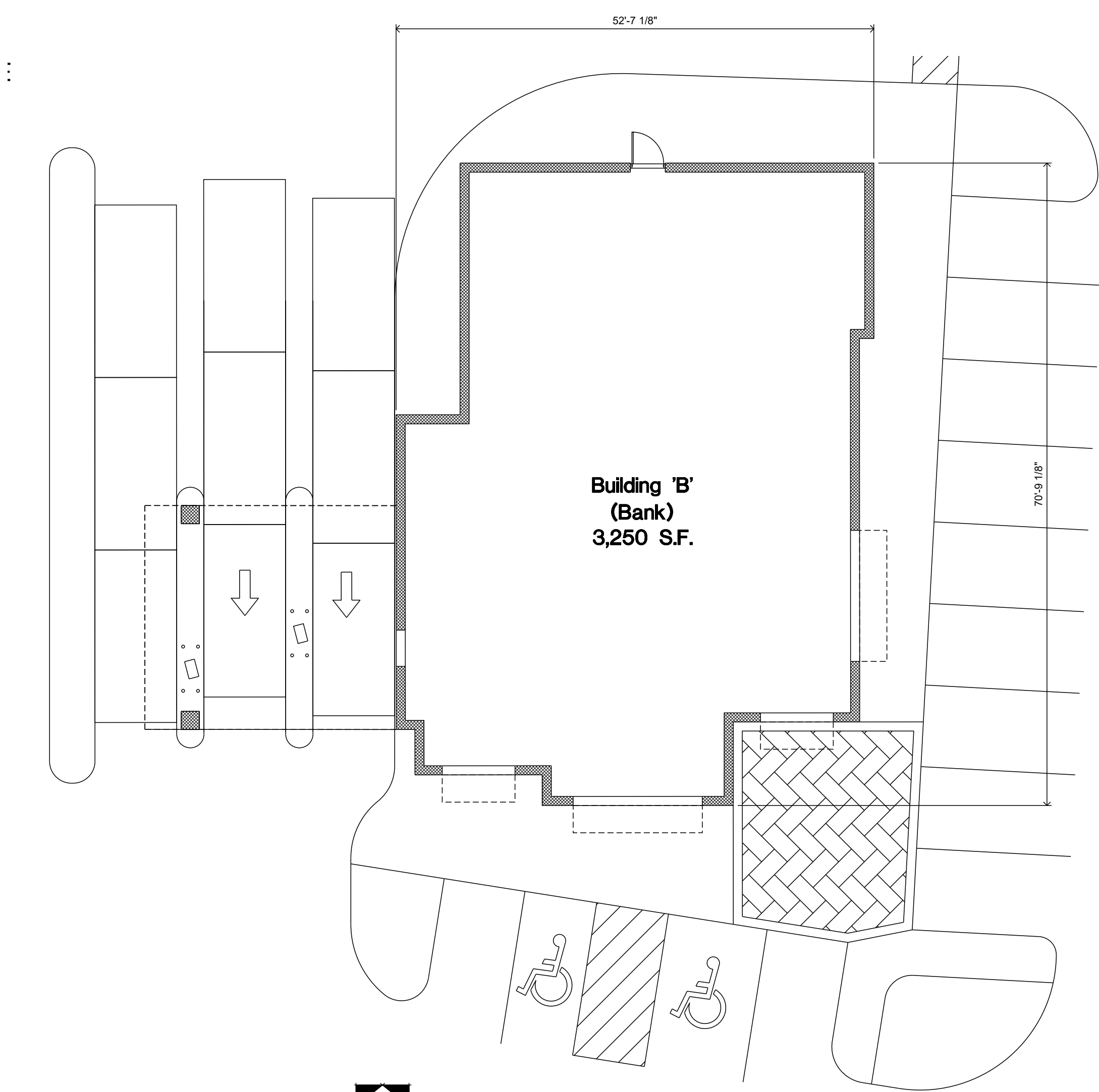
East Elevation

Scale: 3/32"=1'-0"



West Elevation

Scale: 3/32"=1'-0"



Floor Plan

Scale: 3/32"=1'-0"



South Elevation

Scale: 3/32"=1'-0"

Z EIMET W OZNIAK
& ASSOCIATES

Civil Engineers & Land Surveyors

55800 Grand River Avenue, Suite 100
New Hudson, Michigan 48165-9318
248.437.5099 · 248.437.5222 fax
www.zeimetwozniak.com

April 8, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park rezoning with a PRO, JSP15-0008
Response to Planning Review

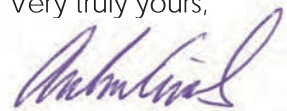
Dear Ms. McBeth:

We would like to thank Community Development and Clearzoning for the recommendation to the Planning Commission to consider a positive recommendation to the City Council.

We have reviewed the Clearzoning report dated March 18, 2016 and are prepared to address any comments on subsequent submittals.

Should you need any additional information please don't hesitate to contact us.

Very truly yours,



Andrew J. Wozniak

Z EIMET W OZNIAK
& ASSOCIATES

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April 20, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park PRO
Response to Engineering Review

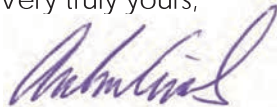
Dear Ms. McBeth:

We would like to thank Engineering for their recommendation for approval of the Revised Concept Plan and Concept Storm Water Management Plan.

We have reviewed their letter dated April 15, 2016 and will address additional comments detailed in their review letter dated March 21, 2016 during Final Site Plan submittal.

Should you need any additional information please don't hesitate to contact us.

Very truly yours,



Andrew J. Wozniak

ZEIMET WOZNIAK & ASSOCIATES

Civil Engineers & Land Surveyors

55800 Grand River Avenue, Suite 100
New Hudson, Michigan 48165-9318
248.437.5099 · 248.437.5222 fax
www.zeimetwozniak.com

April 21, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park rezoning with a PRO, JSP15-0008
Response to Landscape Review

Dear Ms. McBeth:

We would like to thank City staff for their landscape review the recommendation for approval with reservations of the revised site plan.

We have reviewed the landscape report dated April 15, 2016 and will address the comments during Final Site Plan submittal. **We are requesting five deviations/waivers pertaining to this review, all of which are supported by City staff.**

We offer the following response to the review comments.

Existing Trees

“As this is a PRO, there could be some flexibility in terms of allowing extra credits for the use of upsized trees which is normally not allowed by the Landscape Design Manual. In light of this, I support the use of some upsized evergreens to provide more interest along Meadowbrook, and more screening between the residential lots “fronting” the commercial, but I don’t believe that the total benefit in credits for this should be more than 33% of the trees planted (in other words 33, not 85). As ECT is officially responsible for reviewing plans for the Woodlands, I defer to their review on this matter”.

- 3. While ECT will provide the woodland review, it should be noted that the Landscape Design Manual specifically forbids the use of upsizing credits for Woodland Replacement Trees (Section 3.c.(2)). The applicant can request a deviation as part of the PRO agreement, and staff supports the use of some upsizing with credit within the PRO to provide additional interest and screening along Meadowbrook, and along the south edge of the residential part of the development to provide additional screening from the commercial part of the development. That being said, the number of credits sought seems excessive, as noted in the discussion above.***

With the support of City Staff, Tollgate Education Community and MSU Horticulture staff, we are proposing larger trees along the Meadowbrook Road Frontage and between the commercial and residential developments. As City staff suggests and everyone agrees, larger trees will "provide additional landscape interest and screening along Meadowbrook Road and along the south edge of the residential portion of the development to provide additional screening from the commercial part of the development".

We are proposing to upsize only evergreen trees as suggested by Toll Gate Educational Community and MSU Horticulture Department staff to maximize the impact of the upsizing and to create a more natural landscape. Upsizing only evergreen trees was discussed and supported by City staff at our meeting on April 13, 2016.

A total of 604 replacement trees and 681 replacement shrubs are proposed to satisfy 100% of the required replacement credits. It's important to note that only 102 trees will be upsized. We believe that the proper way to analyze the requested upsizing is to look at the total amount of Woodland Replacement Trees, not just the evergreen trees. We are proposing to upsize 153 of the total 718 required woodland replacement tree credits which is only 21% of the total.

Larger trees cost more money and we are requesting credit for upsizing these trees. We will plant Woodland Replacement Trees and shrubs that are not upsized to satisfy the requirements, but feel that this will not achieve the effect that everyone desires.

Thank you for your support to "use of some upsized evergreen trees to provide more interest along Meadowbrook, and more screening between the residential lots "fronting" the commercial" We are requesting a deviation from the PRO to receive credit for upsizing 102 Woodland Replacement Trees as part of the Woodland review.

Meadowbrook

b. A landscape waiver for the berm could be sought for the wetland just north of the residential entry (approximately 170 lf) and the wet areas south of the residential area (approximately 420 lf). This waiver would be supported by staff.

A berm cannot be provided due to topography, existing vegetation and topography.

Thank you for your support of our request for a waiver to not provide a berm just north of the residential entry (approximately 107 lf)

c. If the developer wishes to not build berms along the remaining frontage, this would require a deviation as part of the PRO. Given the heavy vegetation proposed within the greenbelt and right-of-way, this would also be supported by staff.

A berm cannot be provided due to existing vegetation.

Thank you for your support of our request for a deviation as part of the PRO to not build a berm along the remaining residential frontage of Meadowbrook Road.

Plantings

b. A landscape waiver could be sought for the required trees and subcanopy trees in the wetland areas described above for the berms. This waiver would be supported by staff.

A berm and the required trees cannot be installed due to existing vegetation and topography.

Thank you for your support of our request for a waiver for the required for the required trees and subcanopy trees required to be installed on the berms.

c. No required greenbelt landscaping is proposed for the 540 lf of frontage south of the residential section. Some of this deviation is due to the existing wetland areas, and some is due to the heavy plantings of woodland replacement trees. Normally, required trees cannot be replaced with woodland trees. However, in this case, the Planning Commission is allowed leeway in allowing a waiver for the greenbelt plantings if it finds that "the site would be enhanced by an alternate design solution" As the park area will be heavily landscaped and protected with a conservation easement, and much of the existing natural area will be enhanced through restoration, a waiver for the required greenbelt trees in this section can be requested and will be supported by staff.

We are proposing to heavily landscape the Meadowbrook Road frontage. Additional landscaping should not be required since this parcel is not being developed and is being donated to the City.

Thank you for your support of our request for a waiver for installation of the greenbelt landscaping along the Meadowbrook Road frontage south of the residential development (approximately 540 feet).

d. The required plantings for the remaining 540lf of frontage (1336lf – 540lf – 86lf – 170lf) should be provided. Existing trees may be able to meet some or all of the requirements for that section of frontage, but their size and identity need to be shown with size and identity on the plan. They need to be acceptable size and acceptable species to count.

We are proposing to heavily landscape the Meadowbrook road frontage which will be supplemented by existing trees and vegetation. The size and identity of the existing trees is show on sheet SP-4 but will be clarified on the landscape plans during Final Site Plan submittal.

Twelve Mile Road

- 2 An undulating berm at least 3' tall with a 2' crest is required between the road and the parking lot. No berm is proposed. A privet hedge is proposed, but this does not provide the same screening of automobile headlights as a berm would. A landscape waiver may be requested from the Planning Commission, but would not be supported by staff as there is no topographical reason for not providing this berm. Also, while allowed by ordinance, privet is known to be an invasive plant that invades area woodlands and***

should be substituted with another non-invasive species if the applicant elects to pursue the hedge as screening.

A berm has been provided along Twelve Mile Road on the revised plans.

- 3 In addition to the berm, one large evergreen or deciduous canopy tree per 35 lf frontage and 1 subcanopy tree per 20 lf frontage is required along the parking lot. The calculations and trees provided need to be revised.***

The required trees will be provided during Final Site Plan submittal.

- 4 The total frontage for Twelve Mile Road should be included in the calculations. A landscaping waiver for the western 160' can be sought and will be supported for the same reason described in 3.c. above.***

We are providing extensive landscaping along the entire Twelve Mile Road frontage. We suggest that the western 160 feet of the Twelve Mile Road frontage should not require additional landscaping and should not be included in the calculation for the commercial development since this parcel is not being developed and is being donated to the City.

Thank you for your support of our request for a deviation for landscaping along the western 160 feet of the Twelve Mile Road frontage.

Screening Between Residential and Non-residential – Berm (Wall) & Buffer

- 3 It appears that the proposed landscaping will provide the required screening, despite the difference in height, but a section view from Meadowbrook should be added to show the proposed buffering capability of that landscaping, showing the buildings at proposed elevations and the landscaping at a height that can be expected after 2 years of growth.***

A section view will be provided during Final Site Plan submittal.

- 4 If that section reveals that the screening is insufficient, additional screening in the form of dense evergreens, a landscaped berm high enough to provide the required buffering, or other screening will be required.***

Noted

Street Tree Requirements

Residential Interior:

- 2 An additional street tree needs to be added to the plan to match the numbers shown as provided in the calculations.***

An additional street tree will be provided during Final Site Plan submittal.

Meadowbrook Road:

- 1 Please break out the frontage by road in the calculations (1336lf less 86lf for Meadowbrook and 607 lf for Twelve Mile Road).**

The frontage calculations will be broken down by road during Final Site Plan submittal. As previously stated, the Twelve Mile Road and Meadowbrook Road frontage should not be included since this parcel is not being developed and is being donated to the City

- 2 1 deciduous canopy tree per 35 lf is required along areas facing parking, and 1 tree per 45 lf is required along other right-of-way frontage for commercial, and 1 tree per 35 lf is required for residential. 1 tree per 45 lf can be used for the Meadowbrook frontage south of the residential areas.**

Noted and will be addressed during Final Site Plan submittal.

- 3 Parking lot trees must be deciduous canopy trees, not evergreen trees or subcanopy trees. Please replace the above with deciduous canopy trees. Per the ordinance definition, deciduous canopy trees must have a mature canopy width of at least 20' to provide shading effect for adjacent spaces.**

Noted and will be addressed during Final Site Plan submittal.

- 4 The replacement trees shown along the parking lots' perimeters must be changed to be interior or perimeter parking lot trees to provide the greatest number of trees possible toward meeting those requirements. Replacement trees can only be used along the perimeter if the other requirements are met.**

Noted and will be addressed during Final Site Plan submittal.

Parking Lot Perimeter Canopy Trees

- 1 Perimeter calculations have been provided as requested. Please check to see that the perimeter length is correctly measured. Once the replacement trees along the perimeter are converted to perimeter or interior trees as noted above and the parking lot is reconfigured to provide a greater number of interior trees in acceptable islands, the shortage of trees may be considered acceptable.**

Noted and will be addressed during Final Site Plan submittal.

- 2 Parking lot perimeter trees are required to be deciduous canopy trees. Please replace any evergreen perimeter trees with deciduous canopy species.**

Noted and will be addressed during Final Site Plan submittal.

Transformer/Utility Box Screening

- 1 When transformers/utility boxes are added to the plans, be sure to screen them per the city standard detail.**

Noted and will be addressed during Final Site Plan submittal.

Building Foundation Landscape

- 1 Building foundation landscaping is calculated as the entire building perimeter * 8 feet. I calculated the total perimeters of the two buildings as approximately 584 feet. This would result in a requirement for a total of 4672 square feet of foundation landscape area. The basis of calculation does not appear to be correct. Please correct that and the required area.**

Noted and will be addressed during Final Site Plan submittal.

- 2 60% of the frontage visible from Twelve Mile Road should be landscaped. As proposed, there is no foundation landscaping proposed along the Twelve Mile frontage of either building. Landscaping needs to be added along the south elevation of the two buildings and needs to be adjacent to outdoor patios.**

Noted and will be addressed during Final Site Plan submittal.

- 3 If, because of the nature of the operations, all of the required foundation landscaping cannot be located immediately adjacent to the building, a landscape waiver can be requested, but the balance of the required space must be provided elsewhere on the commercial area of the site.**

Noted and will be addressed during Final Site Plan submittal.

- 4 Please label all landscape areas in SF on site plans.**

Noted and will be addressed during Final Site Plan submittal.

General/Other

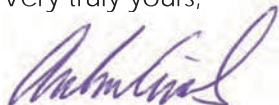
Proposed Trees to be saved

- 3 Please leave the labels for trees to remain on the landscape plan.**

Noted and will be addressed during Final Site Plan submittal.

Again, we would like to thank you for this review and we look forward to working with you on this project.

Very truly yours,



Andrew J. Wozniak

Z EIMET W OZNIAK
& ASSOCIATES

Civil Engineers & Land Surveyors

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New Hudson, Michigan 48165-9318
248.437.5099 · 248.437.5222 fax
www.zeimetwozniak.com

April 21, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park rezoning with a PRO, JSP15-0008
Response to Woodland Review

Dear Ms. McBeth:

We would like to thank ECT for their woodland review the recommendation for approval of the revised site plan.

We have reviewed the ECT report dated April 19, 2016 and will address the comments on the Final Stamping Set as requested. **We are requesting two deviations pertaining to this review.**

We offer the following response to the review comments.

- 1. ECT supports the use of Woodland Replacement Trees and shrubs as currently proposed in order to supplement the required trees along Meadowbrook Road but we do not support the replacement of Street Tree requirements with Woodland Replacement Trees. Please see the specific comments in the Landscape Review letter dated April 15, 2016.***

The required number of Street Trees along the residential (Meadows) and commercial (Shoppes) have been provided and are shown on sheets LS-2 and LS-3 of the landscape plans. In addition to the required Street Trees, we are proposing to install Woodland Replacement Trees within the right-of-way to enhance the design as suggested by Toll Gate Education Community. The Woodland Replacement Trees are shown on sheets LS-6 and LS-7.

We are proposing to heavily landscape the frontage of the Park Trailhead along the Meadowbrook Road and Twelve Mile Road rights-of-way. These plantings would be Woodland Replacement Trees and are shown on sheet LS-6 and LS-7. We are proposing that Street Trees along the proposed frontage of the Park Trailhead should not be required since this parcel is not being developed and is being donated to the City.

We request a deviation from this requirement if necessary.

2. ***The City's Landscape Design Manual specifically forbids the upsizing of Woodland Replacement Trees for additional Credits (Section 3.c.(2)). The applicant can, however, request a deviation as part of the PRO agreement. ECT and the City Landscape Architect support the use of some upsizing with credit within the PRO in order to provide additional landscape interest and screening along Meadowbrook Road and along the south edge of the residential portion of the development to provide additional screening from the commercial part of the development. That being said, the number of additional credits through the use of upsized Woodland Replacement trees (i.e., 10-foot evergreen trees) seems excessive.***

As noted in the Landscape Review, 40% of the proposed evergreen trees are upsized from 7' to 10' height (i.e., 102 of 253 total evergreens are proposed as 10' tall trees). Consistent with the Landscape Design Manual, the applicant is requesting 1.5 credits per 10' tree instead of the 0.67-credit per tree that is normally allowed for a 7' tall evergreen per the Woodland Ordinance. The result is an additional 85 Woodland Replacement Credits on 102 replacement trees provided. ECT concurs with the Landscape Review in that the amount of credits for the providing upsized evergreen trees as Woodland Replacement trees should be limited. The total benefit in credits derived from the "upsized" Woodland Replacement material should not be more than 33% of the total number of "upsized" trees planted.

With the support of City Staff, Tollgate Education Community and MSU Horticulture staff, we are proposing larger trees along the Meadowbrook Road Frontage and between the commercial and residential developments. As City staff suggests and everyone agrees, larger trees will "provide additional landscape interest and screening along Meadowbrook Road and along the south edge of the residential portion of the development to provide additional screening from the commercial part of the development".

We are proposing to upsize only evergreen trees as suggested by Toll Gate Educational Community and MSU Horticulture Department staff to maximize the impact of the upsizing and to create a more natural landscape. Upsizing only evergreen trees was discussed and supported by City staff at our meeting on April 13, 2016.

A total of 604 replacement trees and 681 replacement shrubs are proposed to satisfy 100% of the required replacement credits. It's important to note that only 102 trees will be upsized. We believe that the proper way to analyze the requested upsizing is to look at the total amount of Woodland Replacement Trees, not just the evergreen trees. We are proposing to upsize 153 of the total 718 required woodland replacement tree credits which is only 21% of the total.

Larger trees cost more money and we are requesting credit for upsizing these trees. We will plant Woodland Replacement Trees and shrubs that are not upsized to satisfy the requirements, but feel that this will not achieve the effect that everyone desires.

Thank you for your support to "use some upsizing with credit within the PRO". We are requesting a deviation from the PRO to receive credit for upsizing 102 Woodland Replacement Trees.

3. ***The Applicant is encouraged to provide preservation/conservation easements for any areas of remaining woodland.***

Preservation/ conservation easements will be provided.

- 4. The Applicant is encouraged to provide woodland conservation easements for any areas containing woodland replacement trees, if applicable. It is not clear how all of the proposed replacement trees will be guaranteed in perpetuity. As stated in the woodland ordinance.**

Where replacements are installed in a currently non-regulated woodland area on the project property, appropriate provision shall be made to guarantee that the replacement trees shall be preserved as planted, such as through a conservation or landscape easement to be granted to the city. Such easement or other provision shall be in a form acceptable to the city attorney and provide for the perpetual preservation of the replacement trees and related vegetation.

Woodland conservation easements will be provided. Provisions to guarantee that the replacement trees shall be preserved as planted will be provided.

- 5. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch d.b.h. or greater. Such trees shall be relocated or replaced by the permit grantee. All replacement trees shall be two and one-half (2 ½) inches caliper or greater deciduous trees or 6-foot tall (minimum) coniferous trees. Deciduous replacement trees shall be provided at a 1:1 replacement ratio and coniferous replacement trees shall be provided at a 1.5:1 replacement ratio. See the Woodland Tree Replacement Chart (attached) for acceptable replacement tree species.**

Noted

- 6. A Woodland Replacement financial guarantee for the planting of replacement trees will be required, if applicable. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of \$400. Based on a successful inspection of the installed on-site Woodland Replacement trees, seventy-five percent (75%) of the original Woodland Financial Guarantee shall be returned to the Applicant. Twenty-five percent (25%) of the original Woodland Replacement financial guarantee will be kept for a period of 2-years after the successful inspection of the tree replacement installation as a Woodland Maintenance and Guarantee Bond.**

Noted

- 7. The Applicant will be required to pay the City of Novi Tree Fund at a value of \$400/credit for any Woodland Replacement tree credits that cannot be placed on-site.**

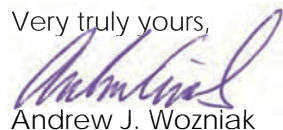
Noted

- 8. Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the Plant Material Spacing Relationship Chart for Landscape Purposes found in the City of Novi Landscape Design Manual.**

Noted

Again, we would like to thank you for this review and we look forward to working with you on this project.

Very truly yours,



Andrew J. Wozniak

The Ivanhoe Companies

April 14, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: **Beacon Hill Park**
Landscape and Woodlands: Ivanhoe; Americana Foundation; Tollgate Education Center; and the
City of Novi Site Plan Collaboration

Dear Ms. McBeth:

Since the Planning Commission meeting on September 9, 2015, we have had multiple collaborative meetings with you, Clear Zoning, ECT and City staff to achieve our mutual goal. As you are aware, there have been numerous revisions accommodating the requests from the consultants' letters.

For well over a year, we have been working and adjusting the plan to have a complementary development to the Tollgate Education Center property directly to the west. The key accommodation and collaboration resulted in an extraordinary open space running north and south the entire length of Meadowbrook Road, adjacent to the 5 acre park and the deeper open space park area in front of the commercial, effectuating a continuous buffer on the main roads whereby the community will have 42% open space.

We redesigned the community, specifically as recommended by Tollgate Education Center, whereby the Beacon Hill Meadows road is located approximately 140 feet from Meadowbrook Road which will provide a visual extension of the farm. We revised the plan and added an additional 50 foot landscaped nature corridor. Tollgate Education Center strongly recommended and we have agreed, that the proposed landscaping on the east side of Meadowbrook Road should present a natural progression of plantings from low shrubs to medium understory plantings to canopy trees, to provide a natural appearance.

Under the direction of the Americana Foundation and their consultants, in collaboration with our consultants; Felino Pascual & Associates, Zeimet Wozniak & Associates and King & MacGregor, we have been working with Toll Gate Education Center staff and Michigan State University staff to revise the proposed landscaping plans for Beacon Hill Park along Meadowbrook Road. We have met, and revised the plans multiple times, with the direction of Mr. Roy Prentice, Farm Manager of the Tollgate Education Center and Dr. Robert Schutzki, Associate Professor with the Department of Horticulture at MSU in a collaborative effort to achieve our goal. It is essential to all that the proposed landscaping not only provide a buffer between the farm and the proposed homes, but blends seamlessly with the existing features of Tollgate Education Center and the west side of Meadowbrook Road.

In order to accomplish this we will require flexibility in the proposed landscaping, unique to our sites on Meadowbrook Road. Rather than a single row of trees located along the proposed Meadowbrook Road right-of-way, north of the proposed entrance to Beacon Hill Meadows, we are proposing clusters of bushes be located nearest the sidewalk then a variation of sub-canopy ornamental trees which finally give way to larger canopy trees. Beyond the canopy trees we propose to preserve the natural

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The Ivanhoe Companies

vegetation within the green belt area. We are proposing to move some of the required landscaping into the Meadowbrook Road right-of-way in order to preserve the existing vegetation and provide a natural buffer while maintaining site distance visibility. This will offer a natural feel for Meadowbrook Road that we, along with Tollgate Education Center, are hoping to achieve. I have attached correspondence from Mr. Roy Prentice, Dr. Schutzki, and representatives from Americana Foundation and Tollgate Education Center outlining their desires that include achieving the set-back and natural design of the project including tree and shrubs species.

The park area located adjacent to the proposed community residential entrance has been revised to incorporate a natural progression from low plantings to large canopy trees. South of the entrance park we are proposing that the street trees be clustered both in and adjacent to the Meadowbrook Road right-of-way to introduce the natural feel of the corridor as you proceed north from 12 Mile Road.

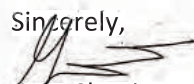
As you are aware, we have met with Novi's woodland consultant and responded to his comments, and updated him on the restoration plan as well as clarifying that over the course of two years there have been multiple alternative uses and revised site plans that have transpired throughout the process. The Meadowbrook Road landscaped corridor was further improved by a large woodland buffer preservation area on the north property line. We have also added a creative woodland restoration area in the center of the residential component. We have located the placement of the trees to create a contiguous wooded corridor the entire length of Meadowbrook with extensive planting of trees in the trailhead park on the corner of 12 Mile Road that we are donating to the City.

Tollgate and MSU suggested that some of the proposed trees be larger particularly along Meadowbrook Road. It was also suggested that larger evergreen trees will provide a more varied and natural looking buffer between the proposed residential (Meadows) and the commercial (Shoppes). A total of 604 replacement trees and 681 replacement shrubs are proposed to satisfy 100% of the required replacement credits. It's important to note that only 102 trees (approximately 21%) will be upsized. As proposed by Tollgate and endorsed by City staff, all of the upsized trees will be evergreens, which will provide maximum impact.

In order to achieve the desired contiguous, natural landscape, the following deviations are requested:

- 1) Credit for upsizing 102 Woodland Replacement Trees.
- 2) Locate street trees in clusters both in and adjacent to the Meadowbrook Road right-of-way.
- 3) Locate replacement trees and shrubs, Meadow Brook Road street trees and greenbelt plantings within the Meadowbrook Road right-of-way.

I would like to thank you, your staff, and consultants for working with us collaboratively to achieve what is an exemplary design that will flow seamlessly into the 5 acre open space park and the Beacon Hill Trailhead on the corner.

Sincerely,

Gary Shapiro

Attachments: Beacon Hill Landscape overview from Roy Prentice, Tollgate Education Center
Letter of Collaboration from Gary Rentrop, Americana Foundation/Tollgate Farms
Copy of email regarding Native Plants

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March 18, 2016

Beacon Hill Landscape

Objective: Create a more naturalistic look with enhanced and strategic plant density and more integrated plantings. In general, planting heights should mimic a woods edge: low shrubs toward the road blending to intermediate sized deciduous and evergreens blending to taller tree species near the development.

Procedure:

Buffer along Meadowbrook Road of 90' to 140' gives a great opportunity to create a visual break for residents of the development between Meadowbrook and their homes. This buffer also will promote the "Natural Beauty" aspects of Meadowbrook. Below are ways to take full advantage of the opportunities offered by this buffer.

- Street trees along Meadowbrook: Make more naturalistic by placing at a random distance from Meadowbrook (either side of the sidewalk) and mixing species.

Shapiro and Pascual indicated that the planting of the trees along Meadowbrook as pictured on the landscape plan was performed by the City with funds provided by the developer. Shapiro and Pascual said that it may be possible to work with the City to alter the plan if the City understands that the intent of the new landscape plan is to create a more naturalistic appearance.

- Use evergreens near the homes in the development as a screen from the road. This practice will also give homeowners a greater sense of seclusion. Smaller hardwoods like serviceberry, redbud, alternate leaf dogwood and Ostrya can be mixed into and toward the road from the evergreens. Shrubs and other low plants (viburnums, witch hazel- Arnold Promise and Jelena, physocarpus – green varieties if planting in natural area) can be placed

closer to the road. Each group of plants of similar height blended into the next plant height group. Avoid obvious lines of similar species.

The landscaper, Pascual, indicated that he understood the concept of what we would like to achieve and that he would work on this.

- What happens in Pocket Park on Meadowbrook Road (located on the north end of the development)? Does this area remain an unmanaged wetland, or are shrubs and other plantings added? Will there be efforts to control Phragmites?

Activities in controlled wetlands (as designated by the City of Novi) may not be possible. Will attempt to control Phragmites and other invasive species in this area.

- It looks like new plantings are to be placed in an existing woodlot at north end of development. If this is true, these new plantings will have a low chance of outcompeting existing vegetation.

Indicated that they would be willing to make use of current woodlot by only selectively removing trees where necessary to promote the growth of new plantings. Willing to relocate plantings on the plan to take advantage of cover provided by existing woodlot. Indicated that he would still keep the same number of trees along the road even if their location was changed.

- Will there be any grading/excavation work done along Meadowbrook Road in the planting zone? There should be a fairly decent top soil layer in this area unless disturbed and reduced during construction.

Civil Engineer, Andrew Wozniak indicated that there would be a significant amount of soil grading and redistribution south of the wetland "Pocket Park." Wozniak indicated that after grading a minimum of 4" of top soil would be returned to all areas. After I indicated that 4" was marginal depth of top soil for trees and shrubs, Shapiro indicated that there was always a lot of top soil on job sites and they would make sure that depth was adequate.

- Review tree and shrub planting guidelines. Soil surface should overlap planted root ball. If planting material established as indicated in guidelines, moisture will naturally flow to the area around root ball. Water may not enter root ball readily due to difference in texture between the newly planted stock and the soil on the planting site. This could easily lead to insufficient moisture entering the root ball death of planting stock.

This was a point that Bob Schutzki brought up after looking at the planting specifications on the landscape plan. Pascual indicated that he would alter the planting specifications to accommodate the new planting guidelines outlined by Dr. Schutzki.

I appreciate the responsiveness of Ivanhoe Developments on this project. I am happy to provide further assistance on the landscape design along Meadowbrook Road. I am sure that one of the attractions for potential residents of the Beacon Hill property is the unique “rural feel” of Meadowbrook road and the proximity of the 160 acre Tollgate Farm and Education Center. With a few strategic changes to the landscape plan, I believe that the Beacon Hill Development can successfully blend with the existing look of Meadowbrook Road.

Roy Prentice
MSU Tollgate Farm Manager

ATTORNEYS AND COUNSELORS AT LAW
RE NTROP & MORRISON, P.C.

39572 WOODWARD AVENUE, SUITE 222
BLOOMFIELD HILLS, MICHIGAN 48304

GARY R. RENTROP
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TELEPHONE (248) 644-6970
FACSIMILE (248) 644-7141

February 22, 2016

Gary Shapiro
Ivanhoe Meadowbrook, LLC
6689 Orchard Lake Road, Suite 314
Farmington Hills, MI 48322

Re: Proposed Beacon Hill Park Development NE Corner - Twelve Mile and Meadowbrook Roads.

Dear Gary:

I am writing to outline conditions which, if satisfied, would result in Americana Foundation (AF) and Michigan State University (MSU) not opposing a PRO approval for Beacon Hill Park development as outlined for us in your February 11, 2016 letter to me and your site plan drawings dated January 4, 2016 provided to the AF and MSU representatives by you at our meeting with you on February 18, 2016.

1. Meadowbrook Landscape: We appreciate your revisions to provide a deeper greenbelt buffer with an average depth in excess of 100 feet as illustrated and referenced in your site plan drawing and letter. The landscaping plan, however, is too "parklike" with trees neatly in a row. We would like to see a landscape plan in the buffer area which is more rural in character using native plant and tree species. We would like to have the opportunity to have input directly with your landscape architect for the purpose of developing a revised landscape plan for this area. Insofar as possible the plan should include trees of height and density to screen the view of homes to be built in your development from Meadowbrook Road and from the farm. MSU will make available land on its property across from the area proposed for homes to be constructed for plantings which will contribute to this screening. We would like you to consider the planting of evergreen trees instead of all deciduous trees to provide screening in the winter months. We recognize much of the plantings proposed in your plans are required to meet the requirements of the city's ordinance. We will work with you and the city to obtain a variance from the city's requirements in order to achieve an approved rural landscaping plan.
2. Construction: If it is possible, access to the property for construction should be off of 12 Mile Road. If it is not possible due to the requirement of wetlands crossing, best efforts shall be made by you, your contractors and employees to minimize construction traffic and adverse conditions due to construction traffic on Meadowbrook Road. Specific details of what best effort steps will entail needs to be provided by you.
3. The Beacon Hill Park property must obtain Planned Rezoning Overlay (PRO) from the City of Novi.

I look forward to continue to work with you toward resolution.

Sincerely,
Gary



Gary Shapiro

From: Felino Pascual <felino@fpa.design>
Sent: Tuesday, April 12, 2016 8:59 AM
To: Gary Shapiro; Andy Wozniak
Subject: Fwd: native plants

----- Forwarded message -----

From: **Prentice, Roy** <prentic1@anr.msu.edu>
Date: Tue, Apr 12, 2016 at 8:02 AM
Subject: native plants
To: "felino@fpa.design" <felino@fpa.design>

Hi Joel,

At our last meeting you asked for recommendations for native plants that would do well in our area. Sorry to be so tardy getting these to you. Below are some good selections. Although I love the look of the native viburnums, I would not feel good about recommending them to you at this time. There is a viburnum leaf beetle that has started to show up in SE Michigan plantings. It can be pretty devastating to the foliage of viburnums. A good site to see an overview of native plants is maintained by the City of Ann Arbor: <http://www.a2gov.org/departments/Parks-Recreation/NAP/Native-Plants/Pages/NativeShrubs.aspx>

<i>Amelanchier laevis</i>	Serviceberry
<i>Cephalanthus occidentalis</i>	Common buttonbush
<i>Cornus alternifolia</i>	Alternate-leafed Dogwood
<i>Cornus sericea</i>	Red osier dogwood, Red-twig dogwood
<i>Corylus americana</i>	American hazelnut
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil
<i>Hamamelis virginiana</i>	American witch hazel

The witch hazels are great for fall flowering. Arnold Promise and Jelena are good varieties.

<i>Ilex verticillata</i>	Winterberry, Michigan holly
<i>Photinia melanocarpa</i>	Black chokeberry

<i>Physocarpus opulifolius</i>	Common Ninebark
<i>Sambucus racemosa</i> var. <i>racemose</i>	Red elderberry
<i>Sambucus nigra</i>	Common elderberry
<i>Staphylea trifolia</i>	American bladdernut

Roy Prentice

MSU Tollgate Farm Manager

28115 Meadowbrook Rd.

Novi, MI 48377

[248 330 3623](tel:2483303623)

--

Felino A. Pascual (Joel), RLA, CLARB
Principal

Felino Pascual & Associates, Inc

Land Planners & Landscape Architects

24333 Orchard Lake Road, Suite G

Farmington Hills, Michigan 48336

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Z EIMET W OZNIAK
& ASSOCIATES

Civil Engineers & Land Surveyors

55800 Grand River Avenue, Suite 100
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www.zeimetwozniak.com

April 8, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park rezoning with a PRO, JSP15-0008
Response to Wetland Review

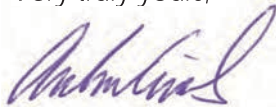
Dear Ms. McBeth:

We would like to thank ECT for the recommendation to approve the revised plan for wetlands.

We have reviewed the ECT report dated March 21, 2016 and will address the comments on the Final Site Plan submittal as requested.

Should you need any additional information please don't hesitate to contact us.

Very truly yours,



Andrew J. Wozniak

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April 8, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park rezoning with a PRO, JSP15-0008
Response to Traffic Review

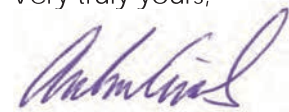
Dear Ms. McBeth:

We would like to thank AECOM for the recommendation to approve the revised plan for traffic.

We have reviewed the AECOM report dated March 18, 2016 and will address the comments to the satisfaction of the City on subsequent submittals, as requested.

Should you need any additional information please don't hesitate to contact us.

Very truly yours,



Andrew J. Wozniak

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& ASSOCIATES

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April 20, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill Park PRO
Response to Fire Department Review

Dear Ms. McBeth,

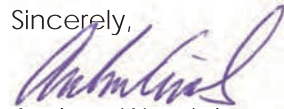
We would like to thank the Fire Department for their recommendation for approval of the revised site plan.

We have reviewed their letter dated April 15, 2016 and will meet the specifications for the required secondary access and break away gate.

Should you need any additional information please don't hesitate to contact us.

Thank you.

Sincerely,



Andrew Wozniak

April 14, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: Beacon Hill, Preliminary Site Plan, Job # JSP15-0008

Dear Ms. McBeth:

The following is in response to the city landscape review comments dated March 21, 2016; Collaboration with Tollgate Education Center; and Our meeting on April 12, 2016. Please see our revised landscape plans, Job No. LS16.008.04, dated 04-13-2016, sheets LS-1 through LS-7 for details and offer the following comments below:

Existing Trees

- Existing trees and tags has been shown on landscape plan
- Upsizing of the woodland replacement trees has been addressed in the woodland response letter and on the plan
- Location and tree protection detail will be provided at final site submittal

Adjacent to Public Rights-of-way-Berm

Meadowbrook

- Requesting a deviation for undeveloped frontage where woods, vegetation and wetland areas exist for greenbelt planting required
- Landscape plan has been updated accordingly to meet Meadowbrook greenbelt requirements along developed frontage
- A berm will not be installed and a deviation will be requested due to topography

Twelve Mile

- A berm has been provided along Twelve Mile Road, commercial frontage
- We are requesting deviation for undeveloped greenbelt planting along the park trailhead frontage. Note the substantial tree replacements within the natural park setting
- Greenbelt landscape requirement has been revised and proposed plantings has been provided along the commercial frontage, calculations have been updated

Screening Between Residential and Non-residential Berm

- A deviation will be requested for the berm requirement. A large buffer and extensive landscaping has been provided between residence and commercial in lieu of 6'-8' berm
- A section depicting the open space plantings between the commercial and residential components will be provided during site plan submittal
- Wildflower seed mix has been added and additional shrub plantings has been provided along the reconfigured stream



Street Tree Requirements (residential interior)

- Street tree quantities has been updated

Street Tree Requirements (12-Mile and Meadowbrook)

- Calculations have been updated for Meadowbrook Road and Twelve Mile Road per commercial and single family frontage calculations
- Street tree plantings has been provided accordingly per revised frontage requirements.

Parking Lot Landscape (commercial)

- Parking lot calculations have been revised to 5% of area
- Islands area will be adjusted to meet requirements during final site plan approval
- Parking lot trees required will be all deciduous canopy trees will be updated during final site plan.
- Required parking lot trees will be provided during final plan per future tenant.

Parking Lot Perimeter (commercial)

- Perimeter Parking lot trees will be deciduous canopy trees and will be updated during final site plan submittal
- Required parking lot planting adjustments will be provided once final tenant selection is in place

Building Foundation Landscape

- A 60% perimeter landscape deviation is requested as it is not practical in this unique situation and can be addressed after final tenant selection and during final site plan submittal. Note the extensive depth of landscaped greenbelt along the 12 Mile Road corridor
- Final calculations of the landscaped area will be provided during final site plan submittal

Storm Basin Landscape

- Plantings around the detention basins have been updated with native species

Proposed trees to be saved

- Labels for existing trees have been added to the landscape plan

Please do not hesitate to contact me should you have any questions or comments.

Sincerely,

Felino A Pascual, RLA





King & MacGregor
Environmental
Inc.

April 15, 2016

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 West Ten Mile Road
Novi, MI 48375

Re: Beacon Hill (JSP15-0008)
Response to Woodland Review

Dear Ms. McBeth:

This letter is provided on behalf of Ivanhoe Meadowbrook, LLC to address the Woodland Review Comments provided by ECT in their March 21, 2016 Woodland Review of the Revised Concept Plan (PSP16-0108). Responses to the comments are provided below.

Comment 1. ECT encourages the Applicant to minimize impacts to on-site Woodlands to the greatest extent practicable; especially those trees that may meet the minimum size qualifications to be considered a Specimen Tree. Twenty-two (22%) of the regulated on-site trees are proposed to be preserved and seventy eight percent (78%) are proposed for removal. In addition 89% of the potential Specimen Trees are proposed to be removed. The applicant should demonstrate why additional trees cannot be preserved within the proposed lots in areas that fall outside of the proposed building envelopes, as well as in proposed open-space areas.

Preservation of individual trees on the property is proposed to the extent practicable; preservation areas are concentrated in visually prominent locations along the northern and western property boundaries. In other locations, such as on individual lots, additional tree preservation would be complicated by mass grading necessary to accommodate the significant topographic relief on the property without relying on an extensive system of retaining walls, and the need to convey surface water across the site in a manner that meets City and County requirements. We note this involves site grading on all portions of all residential lots; it is only in common spaces at the north and west sides of the residential portion of the project where grading is not proposed and therefore tree preservation is possible.

Furthermore, the preservation of individual trees on residential lots such as these can be problematic for several reasons. First, many of the identified tree species are non-native or represent native species that the Novi Landscape Design Manual expressly prohibits from planting. Our interpretation of the Landscape Design Manual is that these prohibited species are of low quality and are not suitable for residential and commercial settings because of their soft wood and typically weak branching structure. Second, there are significant and inherent challenges with preserving individual trees from existing woodlands during and following construction. These challenges include root cutting and soil compaction from adjacent construction activities, tree health stress brought about by changes in drainage patterns from mass grading of surrounding areas, and tree physical stress brought about by removal of neighboring trees that expose the remaining tree(s) to increases in light and wind which in turn may lead to sunscald or breakage of limbs and stems. Given the proposed site plan, it is our

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Grand Rapids, MI 49546
Phone: 616/957-1321
Fax: 616/957-2198

43050 Ford Road, Suite 130
Canton, MI 48187
Phone: 734/354-0594
Fax: 734/354-0593

162 Kuivila Road
Crystal Falls, MI 49920
Phone: 906/367-0171

email: kme@king-macgregor.com

opinion that efforts to preserve individual trees on the proposed residential lots are unlikely to be successful and therefore neither prudent nor feasible.

As it relates to Specimen Trees, we are unaware of any on-site trees that meet the full definition of "Specimen Tree" as regulated by Novi ordinance.

Comment 2. The Applicant should demonstrate that alternative site layouts that would reduce the overall impacts to woodlands have been reviewed and considered. The Applicant should consider modification of the proposed lot boundaries in order to preserve existing woodland areas.

The proposed site plan represents an effort to preserve visually prominent woodlands and wetlands along the western and northern property boundaries while also allowing for the prudent development of the property. This current site layout has been developed over a two year design process working with City staff, Tollgate Education Center and considering comments from the Planning Commission and adjacent properties. Alternative site plans considered are included in the Beacon Hill Revised PRO Plan booklet produced by the applicant and dated February 22, 2016.

Comment 3. For multi-stemmed trees, Woodland Replacements required are calculated by summing the d.b.h. of each stem greater than or equal to 8 inches and dividing the total by 8. All fractional Woodland Replacements required are rounded up to the nearest whole tree replacement. It is recommended that the applicant provide a column on the Tree Removal List (Sheet SP-4) that specifies the required Woodland Replacement Credits required for each tree to be removed. The applicant should review and revise the Plan as necessary

The calculation of Woodland Replacements has been revised and is depicted on Zeimet Wozniak & Associates drawing sheet SP-4.

Comment 4. A tree species (red maple multi-stem/Acer r. 'Franksred') proposed for woodland replacement credit is not acceptable per the City of Novi Woodland Tree Replacement Chart (attached). The applicant should review and revise the Plan as necessary noting the tree species that are acceptable as Woodland Replacement credit.

This tree has been removed from the proposed Woodland Replacement tree list.

Comment 5. It is recommended that the applicant revise the Tree Replacement Plan Material List (Sheet LS-6 of 6) to include the number of Woodland Replacement credits being provided for each type of Woodland Replacement material; not just the quantity to be planted. It should be noted that all deciduous replacement trees shall be two and one-half (2 1/2) inches caliper or greater and count at a 1-to-1 replacement ratio. All coniferous replacement trees shall be 6-feet in height (minimum) and provide 1.5 trees-to-1 replacement credit replacement ratio (i.e., each coniferous/evergreen tree planted provides for 0.67 credits).

The Tree Replacement Plan Material List has been revised.



Comment 6.

The Woodland Tree Replacement Summary on Sheet LS-4 of 6 notes that a total of 402 regulated woodland trees are to be removed requiring 702 total Woodland Replacement credits. The summary notes that a total of 702 on-site Woodland Replacement credits will be provided. In general, per the Landscape Design Manual Section 3.c.(2) no additional Woodland Replacement credits can be gained by using larger plant material than those specified in the table 3.c.(l). As a rule, the standard woodland replacement tree credits listed on the Woodland Replacement Chart in Section 37 must be used, including the 1.5:1 evergreen ratio. As noted above, all deciduous replacement trees shall be two and one-half (2-1/2) inches caliper or greater and count at a 1-to-1 replacement ratio. Based on this requirement, it appears as if the Plan is currently proposing 289 deciduous replacement trees (providing 289 credits at 1:1 replacement ratio) and 224 coniferous replacement trees (will provide 149 credits at 1.5:1 replacement ratio). As such, the plan appears to provide for a total of 438 Woodland Replacement Credits (as opposed to the 702 credits noted in the Woodland Tree Replacement Summary). The "upsizing" of Woodland Replacement trees for additional Woodland Replacement credit is not supported by the City of Novi. As such acceptable replacement evergreen trees shall be provided at a 1.5:1 replacement ratio. The applicant should review and revise the calculations on the Plan and the tree replacement plant list as necessary.

The replacement tree summary on sheet LS-7 has been updated to reflect the new replacement credits required and provided. A total of 604 replacement trees and 681 replacement shrubs are proposed to satisfy the required replacement credits. In working with staff from Tollgate Education Center and Michigan State University (MSU), it was suggested that some of the proposed trees be larger particularly along Meadowbrook Road. It is also our understanding that they feel a progression from shrubs to sub-canopy trees to larger canopy trees will work with the existing trees to blend with the farm property. Tollgate and MSU staff also suggested that larger evergreen trees will provide a more varied and natural looking buffer between the proposed residential (Meadows) and the commercial (Shoppes). Of the 604 replacement trees and 681 replacement shrubs, only 102 trees will be upsized. All of the upsized trees will be evergreens, intended to provide maximum impact. The applicant requests additional credit for upsizing these 102 Woodland Replacement trees. A separate letter from Gary Shapiro provides further information regarding woodlands.

Comment 7. *The Applicant is encouraged to provide preservation/conservation easements for any areas of remaining woodland.*

The Applicant is willing to provide conservation easements for remaining areas of wetland, wetland buffer setback, woodland and areas of woodland replacement trees in areas which will not conflict with future use of the property by residents and visitors. Limits of conservation easements will be determined as soon as the configurations of the final site plan and utility plan are determined.



Comment 8. *The Applicant is encouraged to provide woodland conservation easements for any areas containing woodland replacement trees, if applicable. It is not clear how all of the proposed replacement trees will be guaranteed in perpetuity.*

The Applicant is willing to provide conservation easements for remaining areas of wetland, wetland buffer setback, woodland and areas of woodland replacement trees in areas which will not conflict with future use of the property by residents and visitors. Limits of conservation and/or landscape easements will be determined as soon as the configurations of the final site plan and utility plan are determined.

Comment 9. *A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch d.b.h. or greater. Such trees shall be relocated or replaced by the permit grantee. All replacement trees shall be two and one-half (2-1/2) inches caliper or greater deciduous trees or 6-foot tall (minimum) coniferous trees. Deciduous replacement trees shall be provided at a 1:1 replacement ratio and coniferous replacement trees shall be provided at a 1.5:1 replacement ratio. See the Woodland Tree Replacement Chart (attached) for acceptable replacement tree species.*

The applicant notes this comment.

Comment 10. *A Woodland Replacement financial guarantee for the planting of replacement trees will be required, if applicable. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of \$400.*

The applicant notes this comment.

Comment 11. *The Applicant will be required to pay the City of Novi Tree Fund at a value of \$400/credit for any Woodland Replacement tree credits that cannot be placed on-site.*

The applicant notes this comment.

Comment 12. *Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the Plant Material Spacing Relationship Chart for Landscape Purposes found in the City of Novi Landscape Design Manual.*

The applicant is committed to working with City staff to ensure that the replacement trees are located in accordance to their requirements.



We trust that this additional information addresses these comments at this point in the Novi review process and we anticipate continuing to work with the City and ECT to more-fully address some of the tree issues highlighted as the project advances through the site plan approvals process.

Sincerely,



King & MacGregor Environmental, Inc.

Matt Stone-Palmquist, Licensed Landscape Architect, Certified Arborist

cc: Gary Shapiro, Ivanhoe Meadowbrook, LLC
Andy Wozniak, Zeimet Wozniak & Associates



The Ivanhoe Companies

April 14, 2016

Ms. Barbara McBeth
City of Novi Community Development
45175 West Ten Mile Road
Novi, MI 48375

RE: **Beacon Hill Park**
Landscape and Woodlands: Ivanhoe; Americana Foundation; Tollgate Education Center; and the
City of Novi Site Plan Collaboration

Dear Ms. McBeth:

Since the Planning Commission meeting on September 9, 2015, we have had multiple collaborative meetings with you, Clear Zoning, ECT and City staff to achieve our mutual goal. As you are aware, there have been numerous revisions accommodating the requests from the consultants' letters.

For well over a year, we have been working and adjusting the plan to have a complementary development to the Tollgate Education Center property directly to the west. The key accommodation and collaboration resulted in an extraordinary open space running north and south the entire length of Meadowbrook Road, adjacent to the 5 acre park and the deeper open space park area in front of the commercial, effectuating a continuous buffer on the main roads whereby the community will have 42% open space.

We redesigned the community, specifically as recommended by Tollgate Education Center, whereby the Beacon Hill Meadows road is located approximately 140 feet from Meadowbrook Road which will provide a visual extension of the farm. We revised the plan and added an additional 50 foot landscaped nature corridor. Tollgate Education Center strongly recommended and we have agreed, that the proposed landscaping on the east side of Meadowbrook Road should present a natural progression of plantings from low shrubs to medium understory plantings to canopy trees, to provide a natural appearance.

Under the direction of the Americana Foundation and their consultants, in collaboration with our consultants; Felino Pascual & Associates, Zeimet Wozniak & Associates and King & MacGregor, we have been working with Toll Gate Education Center staff and Michigan State University staff to revise the proposed landscaping plans for Beacon Hill Park along Meadowbrook Road. We have met, and revised the plans multiple times, with the direction of Mr. Roy Prentice, Farm Manager of the Tollgate Education Center and Dr. Robert Schutzki, Associate Professor with the Department of Horticulture at MSU in a collaborative effort to achieve our goal. It is essential to all that the proposed landscaping not only provide a buffer between the farm and the proposed homes, but blends seamlessly with the existing features of Tollgate Education Center and the west side of Meadowbrook Road.

In order to accomplish this we will require flexibility in the proposed landscaping, unique to our sites on Meadowbrook Road. Rather than a single row of trees located along the proposed Meadowbrook Road right-of-way, north of the proposed entrance to Beacon Hill Meadows, we are proposing clusters of bushes be located nearest the sidewalk then a variation of sub-canopy ornamental trees which finally give way to larger canopy trees. Beyond the canopy trees we propose to preserve the natural

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The Ivanhoe Companies

vegetation within the green belt area. We are proposing to move some of the required landscaping into the Meadowbrook Road right-of-way in order to preserve the existing vegetation and provide a natural buffer while maintaining site distance visibility. This will offer a natural feel for Meadowbrook Road that we, along with Tollgate Education Center, are hoping to achieve. I have attached correspondence from Mr. Roy Prentice, Dr. Schutzki, and representatives from Americana Foundation and Tollgate Education Center outlining their desires that include achieving the set-back and natural design of the project including tree and shrubs species.

The park area located adjacent to the proposed community residential entrance has been revised to incorporate a natural progression from low plantings to large canopy trees. South of the entrance park we are proposing that the street trees be clustered both in and adjacent to the Meadowbrook Road right-of-way to introduce the natural feel of the corridor as you proceed north from 12 Mile Road.

As you are aware, we have met with Novi's woodland consultant and responded to his comments, and updated him on the restoration plan as well as clarifying that over the course of two years there have been multiple alternative uses and revised site plans that have transpired throughout the process. The Meadowbrook Road landscaped corridor was further improved by a large woodland buffer preservation area on the north property line. We have also added a creative woodland restoration area in the center of the residential component. We have located the placement of the trees to create a contiguous wooded corridor the entire length of Meadowbrook with extensive planting of trees in the trailhead park on the corner of 12 Mile Road that we are donating to the City.

Tollgate and MSU suggested that some of the proposed trees be larger particularly along Meadowbrook Road. It was also suggested that larger evergreen trees will provide a more varied and natural looking buffer between the proposed residential (Meadows) and the commercial (Shoppes). A total of 604 replacement trees and 681 replacement shrubs are proposed to satisfy 100% of the required replacement credits. It's important to note that only 102 trees (approximately 14%) will be upsized. As proposed by Tollgate and endorsed by City staff, all of the upsized trees will be evergreens, which will provide maximum impact.

In order to achieve the desired contiguous, natural landscape, the following deviations are requested:

- 1) Credit for upsizing 102 Woodland Replacement Trees.
- 2) Locate street trees in clusters both in and adjacent to the Meadowbrook Road right-of-way.
- 3) Locate replacement trees and shrubs, Meadow Brook Road street trees and greenbelt plantings within the Meadowbrook Road right-of-way.

I would like to thank you, your staff, and consultants for working with us collaboratively to achieve what is an exemplary design that will flow seamlessly into the 5 acre open space park and the Beacon Hill Trailhead on the corner.

Sincerely,

Gary Shapiro



Attachments: Beacon Hill Landscape overview from Roy Prentice, Tollgate Education Center
Letter of Collaboration from Gary Rentrop, Americana Foundation/Tollgate Farms
Copy of email regarding Native Plants

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March 18, 2016

Beacon Hill Landscape

Objective: Create a more naturalistic look with enhanced and strategic plant density and more integrated plantings. In general, planting heights should mimic a woods edge: low shrubs toward the road blending to intermediate sized deciduous and evergreens blending to taller tree species near the development.

Procedure:

Buffer along Meadowbrook Road of 90' to 140' gives a great opportunity to create a visual break for residents of the development between Meadowbrook and their homes. This buffer also will promote the "Natural Beauty" aspects of Meadowbrook. Below are ways to take full advantage of the opportunities offered by this buffer.

- Street trees along Meadowbrook: Make more naturalistic by placing at a random distance from Meadowbrook (either side of the sidewalk) and mixing species.

Shapiro and Pascual indicated that the planting of the trees along Meadowbrook as pictured on the landscape plan was performed by the City with funds provided by the developer. Shapiro and Pascual said that it may be possible to work with the City to alter the plan if the City understands that the intent of the new landscape plan is to create a more naturalistic appearance.

- Use evergreens near the homes in the development as a screen from the road. This practice will also give homeowners a greater sense of seclusion. Smaller hardwoods like serviceberry, redbud, alternate leaf dogwood and Ostrya can be mixed into and toward the road from the evergreens. Shrubs and other low plants (viburnums, witch hazel- Arnold Promise and Jelena, physocarpus – green varieties if planting in natural area) can be placed

closer to the road. Each group of plants of similar height blended into the next plant height group. Avoid obvious lines of similar species.

The landscaper, Pascual, indicated that he understood the concept of what we would like to achieve and that he would work on this.

- What happens in Pocket Park on Meadowbrook Road (located on the north end of the development)? Does this area remain an unmanaged wetland, or are shrubs and other plantings added? Will there be efforts to control Phragmites?

Activities in controlled wetlands (as designated by the City of Novi) may not be possible. Will attempt to control Phragmites and other invasive species in this area.

- It looks like new plantings are to be placed in an existing woodlot at north end of development. If this is true, these new plantings will have a low chance of outcompeting existing vegetation.

Indicated that they would be willing to make use of current woodlot by only selectively removing trees where necessary to promote the growth of new plantings. Willing to relocate plantings on the plan to take advantage of cover provided by existing woodlot. Indicated that he would still keep the same number of trees along the road even if their location was changed.

- Will there be any grading/excavation work done along Meadowbrook Road in the planting zone? There should be a fairly decent top soil layer in this area unless disturbed and reduced during construction.

Civil Engineer, Andrew Wozniak indicated that there would be a significant amount of soil grading and redistribution south of the wetland "Pocket Park." Wozniak indicated that after grading a minimum of 4" of top soil would be returned to all areas. After I indicated that 4" was marginal depth of top soil for trees and shrubs, Shapiro indicated that there was always a lot of top soil on job sites and they would make sure that depth was adequate.

- Review tree and shrub planting guidelines. Soil surface should overlap planted root ball. If planting material established as indicated in guidelines, moisture will naturally flow to the area around root ball. Water may not enter root ball readily due to difference in texture between the newly planted stock and the soil on the planting site. This could easily lead to insufficient moisture entering the root ball death of planting stock.

This was a point that Bob Schutzki brought up after looking at the planting specifications on the landscape plan. Pascual indicated that he would alter the planting specifications to accommodate the new planting guidelines outlined by Dr. Schutzki.

I appreciate the responsiveness of Ivanhoe Developments on this project. I am happy to provide further assistance on the landscape design along Meadowbrook Road. I am sure that one of the attractions for potential residents of the Beacon Hill property is the unique “rural feel” of Meadowbrook road and the proximity of the 160 acre Tollgate Farm and Education Center. With a few strategic changes to the landscape plan, I believe that the Beacon Hill Development can successfully blend with the existing look of Meadowbrook Road.

Roy Prentice
MSU Tollgate Farm Manager

ATTORNEYS AND COUNSELORS AT LAW
RE NTROP & MORRISON, P.C.

39572 WOODWARD AVENUE, SUITE 222
BLOOMFIELD HILLS, MICHIGAN 48304

GARY R. RENTROP
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TELEPHONE (248) 644-6970
FACSIMILE (248) 644-7141

February 22, 2016

Gary Shapiro
Ivanhoe Meadowbrook, LLC
6689 Orchard Lake Road, Suite 314
Farmington Hills, MI 48322

Re: Proposed Beacon Hill Park Development NE Corner - Twelve Mile and Meadowbrook Roads.

Dear Gary:

I am writing to outline conditions which, if satisfied, would result in Americana Foundation (AF) and Michigan State University (MSU) not opposing a PRO approval for Beacon Hill Park development as outlined for us in your February 11, 2016 letter to me and your site plan drawings dated January 4, 2016 provided to the AF and MSU representatives by you at our meeting with you on February 18, 2016.

1. Meadowbrook Landscape: We appreciate your revisions to provide a deeper greenbelt buffer with an average depth in excess of 100 feet as illustrated and referenced in your site plan drawing and letter. The landscaping plan, however, is too "parklike" with trees neatly in a row. We would like to see a landscape plan in the buffer area which is more rural in character using native plant and tree species. We would like to have the opportunity to have input directly with your landscape architect for the purpose of developing a revised landscape plan for this area. Insofar as possible the plan should include trees of height and density to screen the view of homes to be built in your development from Meadowbrook Road and from the farm. MSU will make available land on its property across from the area proposed for homes to be constructed for plantings which will contribute to this screening. We would like you to consider the planting of evergreen trees instead of all deciduous trees to provide screening in the winter months. We recognize much of the plantings proposed in your plans are required to meet the requirements of the city's ordinance. We will work with you and the city to obtain a variance from the city's requirements in order to achieve an approved rural landscaping plan.
2. Construction: If it is possible, access to the property for construction should be off of 12 Mile Road. If it is not possible due to the requirement of wetlands crossing, best efforts shall be made by you, your contractors and employees to minimize construction traffic and adverse conditions due to construction traffic on Meadowbrook Road. Specific details of what best effort steps will entail needs to be provided by you.
3. The Beacon Hill Park property must obtain Planned Rezoning Overlay (PRO) from the City of Novi.

I look forward to continue to work with you toward resolution.

Sincerely,
Gary



Gary Shapiro

From: Felino Pascual <felino@fpa.design>
Sent: Tuesday, April 12, 2016 8:59 AM
To: Gary Shapiro; Andy Wozniak
Subject: Fwd: native plants

----- Forwarded message -----

From: **Prentice, Roy** <prentic1@anr.msu.edu>
Date: Tue, Apr 12, 2016 at 8:02 AM
Subject: native plants
To: "felino@fpa.design" <felino@fpa.design>

Hi Joel,

At our last meeting you asked for recommendations for native plants that would do well in our area. Sorry to be so tardy getting these to you. Below are some good selections. Although I love the look of the native viburnums, I would not feel good about recommending them to you at this time. There is a viburnum leaf beetle that has started to show up in SE Michigan plantings. It can be pretty devastating to the foliage of viburnums. A good site to see an overview of native plants is maintained by the City of Ann Arbor: <http://www.a2gov.org/departments/Parks-Recreation/NAP/Native-Plants/Pages/NativeShrubs.aspx>

Amelanchier laevis

Serviceberry

Cephalanthus occidentalis

Common buttonbush

Cornus alternifolia

Alternate-leafed Dogwood

Cornus sericea

Red osier dogwood, Red-twig dogwood

Corylus americana

American hazelnut

Dasiphora fruticosa

Shrubby cinquefoil

Hamamelis virginiana

American witch hazel

The witch hazels are great for fall flowering. Arnold Promise and Jelena are good varieties.

Ilex verticillata

Winterberry, Michigan holly

Photinia melanocarpa

Black chokeberry

<i>Physocarpus opulifolius</i>	Common Ninebark
<i>Sambucus racemosa</i> var. <i>racemose</i>	Red elderberry
<i>Sambucus nigra</i>	Common elderberry
<i>Staphylea trifolia</i>	American bladdernut

Roy Prentice

MSU Tollgate Farm Manager

28115 Meadowbrook Rd.

Novi, MI 48377

[248 330 3623](tel:2483303623)

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Felino A. Pascual (Joel), RLA, CLARB
Principal

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