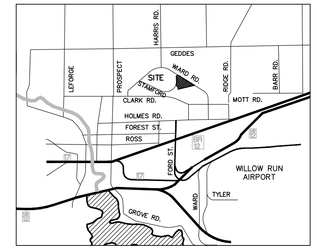
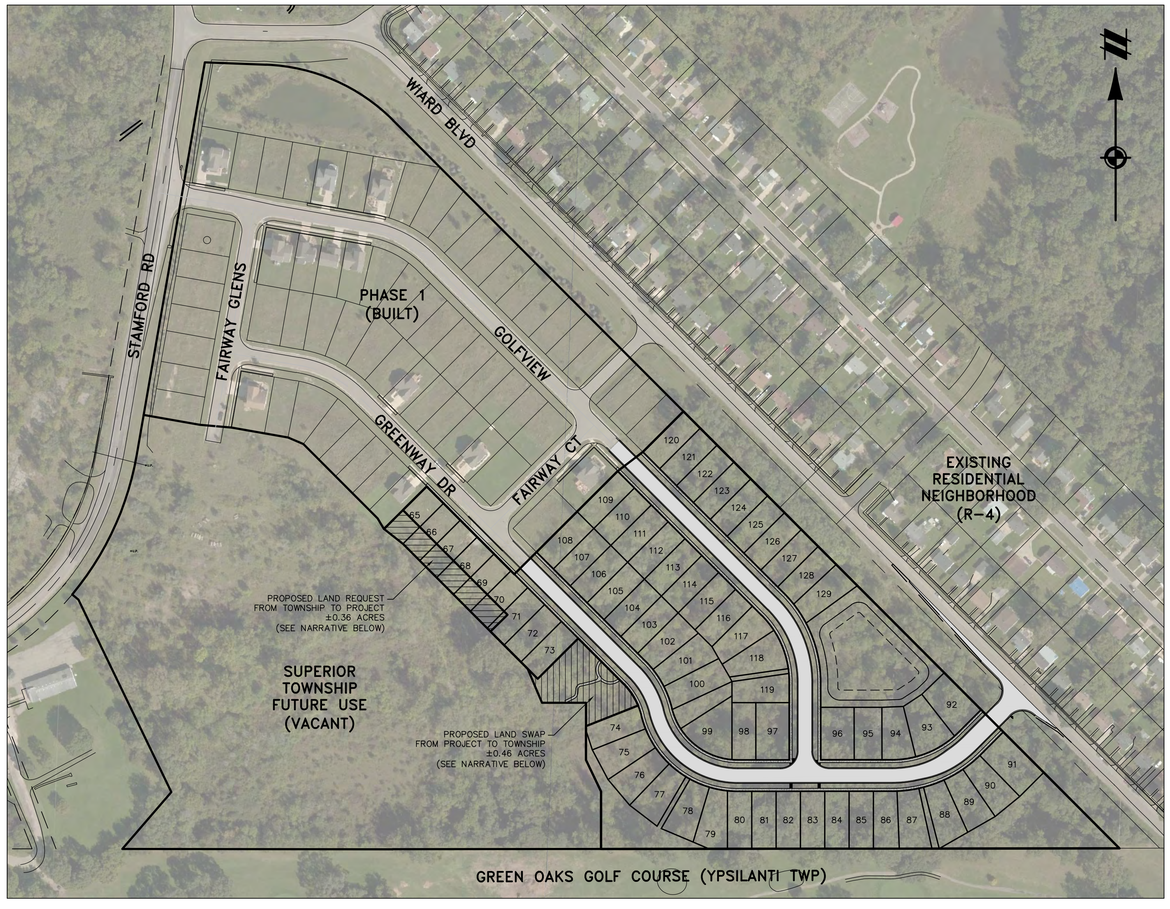
PRELIMINARY SITE PLAN

FAIRWAY GLENS - PHASE II

A SINGLE FAMILY DEVELOPMENT
SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN



VICINITY MAP
NO SCALE



OVERALL DEVELOPMENT MAP
SCALE: 1" = 150 FEET

DEVELOPMENT TEAM

APPLICANT
MAYALCO LLC
ATTN: MR. NABIL AKHRAS
6085 PONTIAC TRAIL
WEST BLOOMFIELD, MI 48323
PHONE: 734.272.7998
EMAIL: AKHRASNABIL@GMAIL.COM

OWNER
MAYALCO LLC
10429 CANARY ISLE
TAMPA, FL 33647
PHONE: 734.272.7998
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PLANNING / ENGINEERING CONSULTANT
ATWELL, LLC
311 NORTH MAIN STREET
ANN ARBOR, MICHIGAN 48104
PHONE: 734.994.4000
ATTN: MATT BUSH, PE
EMAIL: MBUSH@ATWELL-GROUP.COM

LEGAL DESCRIPTION

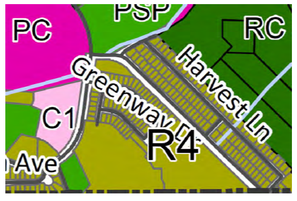
*LEGAL DESCRIPTION SUPPLIED BY OTHERS (ENTIRE PROPERTY – ±46 ACRES)

A PART OF THE SOUTH ½OF SECTION 35, T. 2S., R. 7E., SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS: BEGINNING AT THE SOUTH ¼CORNER OF SAID SECTION 35; THENCE S. 87°47'02" W., ALONG THE SOUTH LINE OF SAID SECTION 35, 566.45 FEET; THENCE N. 38°28'02" E., 157.27 FEET; THENCE N. 28°02'28" W., 448.06 FEET THENCE N. 52°32'29" W., 17.00 FEET TO A POINT ON THE SOUTHERLY (43' HALF WIDTH) RIGHT-OF-WAY LINE OF STAMFORD ROAD (WIDTH VARIES); THENCE FOLLOWING SAID SOUTHERLY LINE OF STAMFORD ROAD 326.08 FEET ALONG A CURVE TO THE LEFT (RADIUS 623.00 FEET, CENTRAL ANGLE 29°59'19", LONG CHORD BEARS N. 22°33'12" E., 322.37 FEET); THENCE CONTINUING ALONG THE SOUTHEASTERLY LINE OF SAID STAMFORD ROAD, N. 07°32'29" E., 835.31 FEET TO A POINT ON THE SOUTHERLY LINE OF WIARD ROAD (WIDTH VARIES) AS DESCRIBED IN A QUIT CLAIM DEED RECORDED IN LIBER 1324, PAGE 24, WASHTENAW COUNTY RECORDS; THENCE N. 89°57'28" E., ALONG SAID SOUTHERLY LINE OF WIARD ROAD, 128.79 FEET TO A POINT, SAID POINT BEING 9.27 FEET EASTERLY OF THE MOST WESTERLY CORNER OF "WASHTENAW AUTUMN NO. 2" SUBDIVISION AS RECORDED IN LIBER 14 OF PLATS, PAGES 27 AND 28, WASHTENAW COUNTY RECORDS; THENCE FOLLOWING THE NEXT THREE (3) COURSES ALONG THE SOUTHWESTERLY LINE OF WIARD ROAD, ALSO BEING THE SOUTHWESTERLY LINE OF SAID "WASHTENAW AUTUMN NO. 2" SUBDIVISION, AND "WASHTENAW AUTUMN NO. 1" SUBDIVISION AS RECORDED IN LIBER 14 OF PLATS, PAGE 26, WASHTENAW COUNTY RECORDS, (1) 297.25 FEET ALONG A CURVE TO THE RIGHT (RADIUS 397.25 FEET, CENTRAL ANGLE 42°52'20", LONG CHORD BEARS S. 68°38'40" E., 290.36 FEET); (2) S. 47°12'40" E., 1147.37 FEET TO A POINT, SAID POINT BEING THE SOUTHERN MOST CORNER OF SAID "WASHTENAW AUTUMN NO. 2 (3) S. 47°12'40" E., 1008.64 FEET TO A POINT, SAID POINT BEING THE SOUTHWESTERN MOST CORNER OF SAID "WASHTENAW AUTUMN NO. 1 ON THE SOUTH LINE OF SAID SECTION 35; THENCE S. 87°38'40" W., ALONG SAID SOUTH LINE OF SECTION 35, 1523.66 FEET TO THE POINT OF BEGINNING. CONTAINS 45.993 ACRES AND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

PHASE 2 LEGAL DESCRIPTION (PER TAX RECORDS):

OWNER REQUEST SU 35-BC-2 L4762 P699 PHASE "II" COMMENCING AT S 1/4 COR SEC 35,TH N 02-03-29 W 692.11 FT, TH N 42-46-11 E 26.97 FT TO A POB, TH N 42-46-11 E 70.00 FT, TH S 47-13-49 E 260.12 FT, TH N 42-46-11 E 306.00 FT, TH N 50-19-35 E 66.58 FT, TH N 42-46-11 E 120.35 FT, TH S 47-12-40 E 285.72 FT, TH S 47-12-40 E 1008.28 FT, TH S 87-38-40 W 1086.57 FT, TH N 02-19-59 W 120.55 FT, TH N 27-42-40 W 73.05 FT, TH N 02-19-59 W 120.00 FT, TH S 87-40-01 W 92.35 FT, TH N 25-00-00 W 77.44 FT, TH N 47-13-49 W 110.25 FT, TH N 43-03-33 E 50.00 FT, TH N 47-13-49 W 310.12 FT TO THE POB, PT OF SE 1/4 SEC 35, T2S-R7E. 15.00 AC SPLIT ON 02/18/2010 FROM J -10-35-480-065 THROUGH J -10-35-480-196;

THE EXISTING PHASE 2 AREA CONSISTS OF APPROXIMATELY 15.0 ACRES. WITH THE PROPOSED SWAP OF LAND FOR LOTS 65-71, THE RESULTING PHASE 2 AREA WOULD BE 14.9 ACRES. UPON AGREEMENT OF THE LAND SWAP BY THE TOWNSHIP, A NEW LEGAL DESCRIPTION WILL BE CREATED FOR THE PHASE 2 AREA.



ZONING MAP

SITE DATA

TAX ID:	J-10-35-400-012
OVERALL PARCEL AREA:	45.99 ACRES (GROSS/NET)
PHASE 2 AREA:	15.00 ACRES (GROSS/NET) – CURRENT 14.90 ACRES (GROSS/NET) – PROPOSED WITH SWAP
EXISTING ZONING:	R-4 SINGLE FAMILY RESIDENTIAL
PROPOSED ZONING:	R-4 SINGLE FAMILY RESIDENTIAL
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL
NUMBER OF PROPOSED LOTS:	65
PROPOSED DENSITY:	4.36 (65 LOTS / 14.9 AC)
LOT AREA PER DWELLING UNIT:	50' X 120' = 6,000 SF (TYPICAL)
MINIMUM LOT WIDTH:	50'
LOT SETBACKS:	
FRONT–	25'
SIDE–	5' (10' BLDG-BLDG)
REAR–	35'
PROPOSED LOT COVERAGE:	28% MAX / 42% FLOOR AREA (PER CONSENT JUDGMENT)
PROPOSED OPEN SPACE:	2.26 ACRES (INC. 1.05 AC. BASIN AREA)
WETLAND IMPACTS:	1.47 ACRES

* WETLAND DELINEATION BASED ON ORIGINAL SITE PLAN INFORMATION

PHASING SCHEDULE

	CONSTRUCTION	COMPLETION (INFRASTRUCTURE)
PHASE I	BUILT	BUILT
PHASE II	SPRING 2020	±6 MONTHS FROM START

ESTIMATED DATE OF FIRST OCCUPANCY: MARCH 2021

SHEET INDEX

01	COVER SHEET
02	EXISTING CONDITION – OVERALL
03	EXISTING CONDITIONS – PHASE 2
04	NATURAL FEATURES PLAN
05	LAYOUT PLAN – OVERALL
06	LAYOUT PLAN – PHASE 2
07	UTILITY PLAN – PHASE 2
08	DRAINAGE PLAN – OVERALL
09	DRAINAGE PLAN – PHASE 2
10	DETENTION BASIN CALCULATIONS
11	LANDSCAPE PLAN – PHASE 2
12	TYPICAL DETAILS

PROJECT NARRATIVE

FAIRWAY GLENS IS LOCATED AT THE SOUTHERN CORNER OF WIARD BOULEVARD AND STAMFORD ROAD IN SUPERIOR TOWNSHIP, ADJACENT TO THE NORTH PROPERTY LINE OF GREEN OAKS GOLF COURSE. THE ORIGINAL FAIRWAY GLENS DEVELOPMENT CONSISTED OF THREE PHASES WITH 196 LOTS AND WAS APPROVED AND PERMITTED THROUGH SUPERIOR TOWNSHIP IN 2002. THE OVERALL SITE IS APPROXIMATELY 46 ACRES AND IS ZONED R-4, SINGLE FAMILY RESIDENTIAL DISTRICT, URBAN.

DUE TO ECONOMIC FACTORS ONLY PHASE 1 WAS CONSTRUCTED AND THE REMAINDER OF THE PROPERTY HAS REMAINED UNDEVELOPED TO DATE. THE APPLICANT IS PROPOSING TO DEVELOP 65 LOTS IN THE PHASE 2 AREA (APPROXIMATELY 15 ACRES), AND THE REMAINDER OF THE PARCEL (ORIGINAL PHASE 3) WILL REMAIN UNDEVELOPED. THE PROPOSED LOT DIMENSIONS ARE 50' X 120' WITH A MINIMUM LOT SIZE OF 6,000 SF. THE HOMES WILL BE SIMILAR IN SIZE TO THOSE CONSTRUCTED IN PHASE 1.

THE CURRENT PHASE 2 PLAN GENERALLY FOLLOWS THE ORIGINAL APPROVED PLANS AND WILL HAVE PUBLIC ROADS WITH SIDEWALKS, AS PROPOSED IN THE ORIGINAL SITE PLAN PACKAGE. THE ORIGINAL ROADWAYS RECEIVED APPROVAL FROM THE COUNTY ROAD COMMISSION BASED ON THE PREVIOUSLY APPROVED PLANS FOR THE PROJECT. DUE TO THE ELIMINATION OF THE FUTURE PHASE 3 AREA, A MODIFICATION IS PROPOSED TO THE ROADWAY TO ELIMINATE THE PREVIOUS ROAD EXTENSIONS INTO THE OLD PHASE 3 AREA (CURRENT TOWNSHIP PARCEL). THIS CHANGE IN ROAD CONFIGURATION HAS PROMPTED A REVISION TO THE LAYOUT IN ORDER TO PROVIDE A MORE TRADITIONAL LOT LAYOUT, PARTICULARLY LOTS 65-71 WHICH ARE LOCATED IN THE AREA WHERE PREVIOUSLY TWO LOTS WERE PROPOSED PARALLEL TO GREENWAY DRIVE WITH THE INTENTION TO FRONT ON THE ORIGINAL PHASE 3 CUL-DE-SAC ROADWAY WHICH HAS BEEN REMOVED. IN ORDER TO FACILITATE THIS, THE DEVELOPER PROPOSES TO SWAP A PORTION OF THE ORIGINAL PHASE 2 LAND WITH THE LAND REQUIRED TO COMPLETE LOTS 65-71 TO FRONT ON GREENWAY DRIVE.

UTILITY SERVICE TO THE THE DEVELOPMENT WILL BE BY PUBLIC SANITARY SEWER WITH A CONNECTION TO THE EXISTING SEWER IN WIARD BOULEVARD, AND PUBLIC WATER SUPPLY WILL ALSO BE CONNECTED TO WIARD BOULEVARD AND LOOPED INTO THE EXISTING SUBDIVISION SYSTEM. STORMWATER MANAGEMENT WILL FOLLOW THE GENERAL INTENTION OF THE PREVIOUSLY APPROVED PLANS WITH A DETENTION BASIN PROPOSED TO DISCHARGE INTO THE BAZLEY-FOSTER DRAIN TO THE EAST.

811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. 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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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SECTION 35
TOWN 3 SOUTH, RANGE 10 EAST
SUPERIOR TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

COVER SHEET

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 — — — —
AS NOTED

DR. MB | CH. WS/CK

P.M. M BUSH

JOB 19000721

SHEET NO.
01

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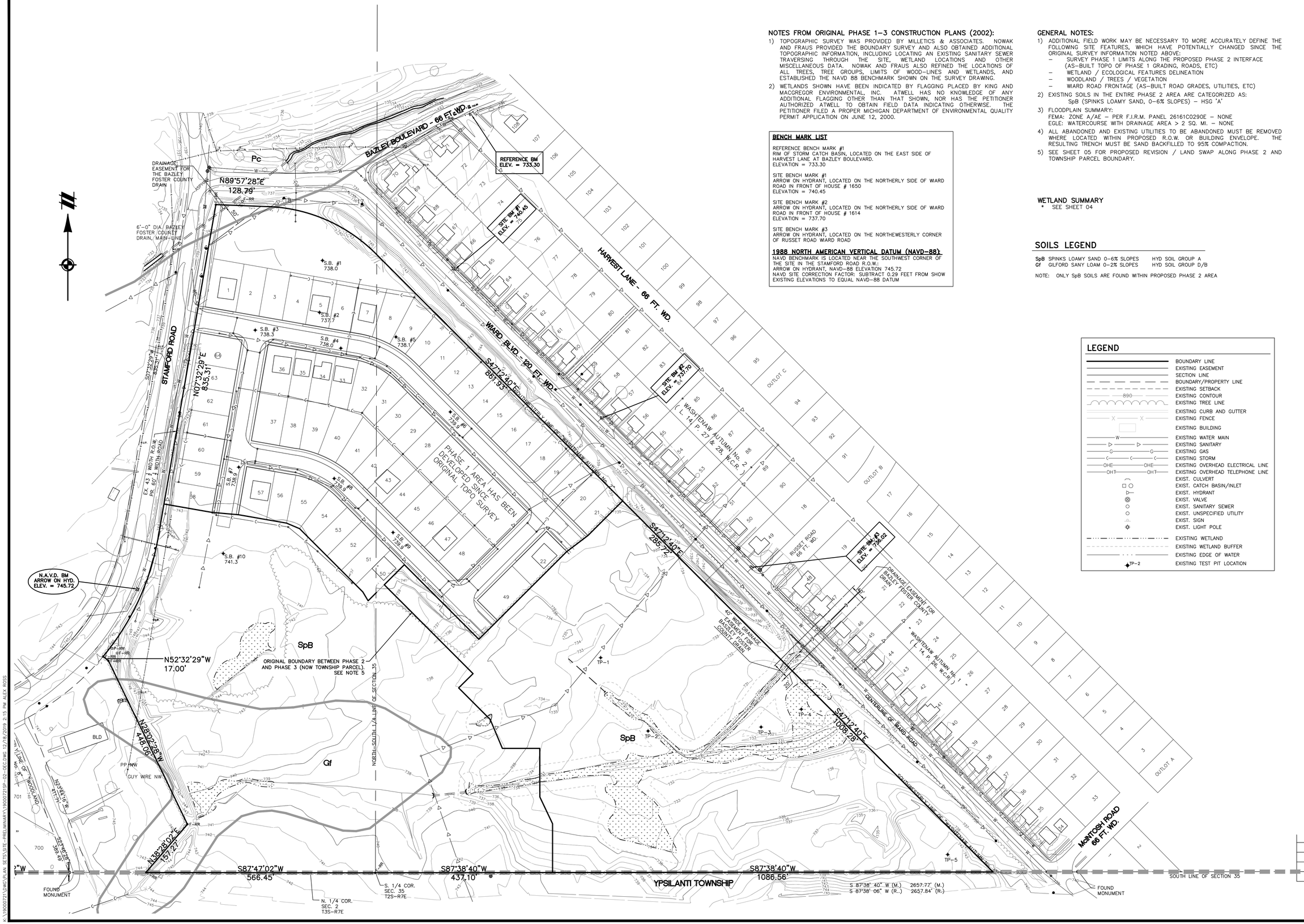

NOTES FROM ORIGINAL PHASE 1–3 CONSTRUCTION PLANS (2002):

1) TOPOGRAPHIC SURVEY WAS PROVIDED BY MILLETICS & ASSOCIATES. NOWAK AND FRAUS PROVIDED THE BOUNDARY SURVEY AND ALSO OBTAINED ADDITIONAL TOPOGRAPHIC INFORMATION, INCLUDING LOCATING AN EXISTING SANITARY SEWER TRAVERSING THROUGH THE SITE, WETLAND LOCATIONS AND OTHER MISCELLANEOUS DATA. NOWAK AND FRAUS ALSO REFINED THE LOCATIONS OF ALL TREES, TREE GROUPS, LIMITS OF WOOD–LINES AND WETLANDS, AND ESTABLISHED THE NAVD 88 BENCHMARK SHOWN ON THE SURVEY DRAWING.
2) WETLANDS SHOWN HAVE BEEN INDICATED BY FLAGGING PLACED BY KING AND MACGREGOR ENVIRONMENTAL, INC. ATWELL HAS NO KNOWLEDGE OF ANY ADDITIONAL FLAGGING OTHER THAN THAT SHOWN, NOR HAS THE PETITIONER AUTHORIZED ATWELL TO OBTAIN FIELD DATA INDICATING OTHERWISE. THE PETITIONER FILED A PROPER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY PERMIT APPLICATION ON JUNE 12, 2000.

BENCH MARK LIST

REFERENCE BENCH MARK #1
RIM OF STORM CATCH BASIN, LOCATED ON THE EAST SIDE OF HARVEST LANE AT BAZLEY BOULEVARD.
ELEVATION = 733.30

SITE BENCH MARK #1
ARROW ON HYDRANT, LOCATED ON THE NORTHERLY SIDE OF WIARD ROAD IN FRONT OF HOUSE # 1650
ELEVATION = 740.45

SITE BENCH MARK #2
ARROW ON HYDRANT, LOCATED ON THE NORTHERLY SIDE OF WIARD ROAD IN FRONT OF HOUSE # 1614
ELEVATION = 737.70

SITE BENCH MARK #3
ARROW ON HYDRANT, LOCATED ON THE NORTHEWESTERLY CORNER OF RUSSET ROAD WIARD ROAD

1988 NORTH AMERICAN VERTICAL DATUM (NAVD–88)
NAVD BENCHMARK IS LOCATED NEAR THE SOUTHWEST CORNER OF THE SITE IN THE STAMFORD ROAD R.O.W.:
ARROW ON HYDRANT, NAVD–88 ELEVATION 745.72
NAVD SITE CORRECTION FACTOR: SUBTRACT 0.29 FEET FROM SHOW EXISTING ELEVATIONS TO EQUAL NAVD–88 DATUM

GENERAL NOTES:

1) ADDITIONAL FIELD WORK MAY BE NECESSARY TO MORE ACCURATELY DEFINE THE FOLLOWING SITE FEATURES, WHICH HAVE POTENTIALLY CHANGED SINCE THE ORIGINAL SURVEY INFORMATION NOTED ABOVE:
   - SURVEY PHASE 1 LIMITS ALONG THE PROPOSED PHASE 2 INTERFACE (AS–BUILT TOPO OF PHASE 1 GRADING, ROADS, ETC)
   - WETLAND / ECOLOGICAL FEATURES DELINEATION
   - WOODLAND / TREES / VEGETATION
   - WIARD ROAD FRONTAGE (AS–BUILT ROAD GRADES, UTILITIES, ETC)
2) EXISTING SOILS IN THE ENTIRE PHASE 2 AREA ARE CATEGORIZED AS:
   SpB (SPINKS LOAMY SAND, 0–6% SLOPES) – HSG 'A'
3) FLOODPLAIN SUMMARY:
   FEMA: ZONE A/AE – PER F.I.R.M. PANEL 26161C0290E – NONE
   EGLE: WATERCOURSE WITH DRAINAGE AREA > 2 SQ. MI. – NONE
4) ALL ABANDONED AND EXISTING UTILITIES TO BE ABANDONED MUST BE REMOVED WHERE LOCATED WITHIN PROPOSED R.O.W. OR BUILDING ENVELOPE. THE RESULTING TRENCH MUST BE SAND BACKFILLED TO 95% COMPACTION.
5) SEE SHEET 05 FOR PROPOSED REVISION / LAND SWAP ALONG PHASE 2 AND TOWNSHIP PARCEL BOUNDARY.

WETLAND SUMMARY

* SEE SHEET 04

SOILS LEGEND

SpB	SPINKS LOAMY SAND 0–6% SLOPES	HYD SOIL GROUP A
Gf	GILFORD SANY LOAM 0–2% SLOPES	HYD SOIL GROUP D/B

NOTE: ONLY SpB SOILS ARE FOUND WITHIN PROPOSED PHASE 2 AREA

LEGEND

- BOUNDARY LINE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING SETBACK
- 890 EXISTING CONTOUR
- EXISTING TREE LINE
- EXISTING CURB AND GUTTER
- EXISTING FENCE
- EXISTING BUILDING
- W EXISTING WATER MAIN
- EXISTING SANITARY
- G EXISTING GAS
- C EXISTING STORM
- OHE EXISTING OVERHEAD ELECTRICAL LINE
- OHT EXISTING OVERHEAD TELEPHONE LINE
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- EXIST. UNSPECIFIED UTILITY
- EXIST. SIGN
- EXIST. LIGHT POLE
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- EXISTING EDGE OF WATER
- TP–2 EXISTING TEST PIT LOCATION

811 Know what's **below.** **Call** before you dig.

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SECTION 35 TOWN 3 SOUTH, RANGE 10 EAST SUPERIOR TOWNSHIP WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN
EXISTING CONDITION – OVERALL

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 50 100
1" = 100 FEET

DR. MB | CH. WS/CK

P.M. M BUSH

JOB 19000721

SHEET NO.
02

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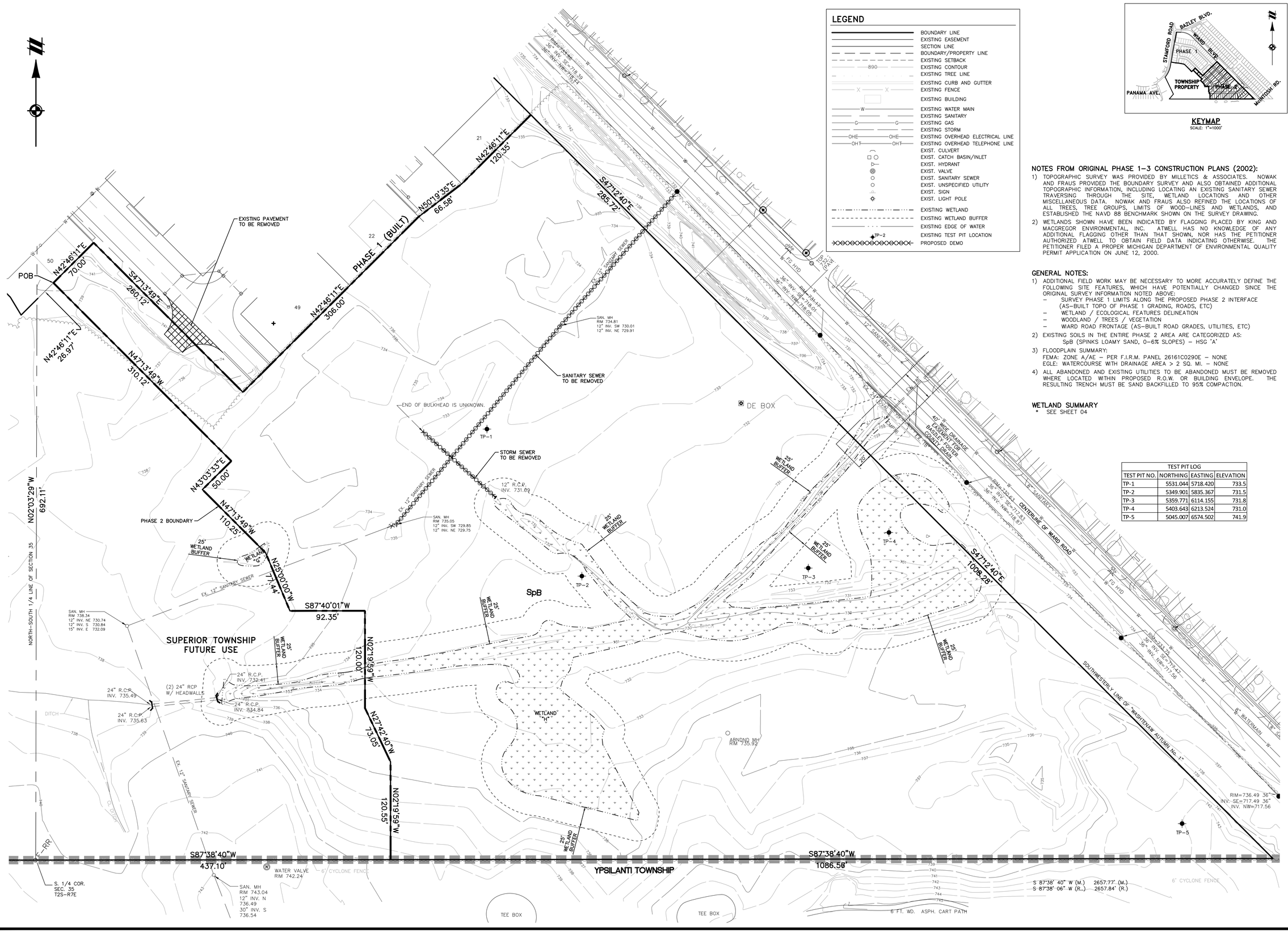

TEST PIT LOG			
TEST PIT NO.	NORTHING	EASTING	ELEVATION
TP-1	5531.044	5718.420	733.5
TP-2	5349.901	5835.367	731.5
TP-3	5359.771	6114.155	731.8
TP-4	5403.643	6213.524	731.0
TP-5	5045.007	6574.502	741.9

NOTES FROM ORIGINAL PHASE 1–3 CONSTRUCTION PLANS (2002):

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GENERAL NOTES:

1) ADDITIONAL FIELD WORK MAY BE NECESSARY TO MORE ACCURATELY DEFINE THE FOLLOWING SITE FEATURES, WHICH HAVE POTENTIALLY CHANGED SINCE THE ORIGINAL SURVEY INFORMATION NOTED ABOVE:
   - SURVEY PHASE 1 LIMITS ALONG THE PROPOSED PHASE 2 INTERFACE (AS–BUILT TOPO OF PHASE 1 GRADING, ROADS, ETC)
   - WETLAND / ECOLOGICAL FEATURES DELINEATION
   - WOODLAND / TREES / VEGETATION
   - WIARD ROAD FRONTAGE (AS–BUILT ROAD GRADES, UTILITIES, ETC)
2) EXISTING SOILS IN THE ENTIRE PHASE 2 AREA ARE CATEGORIZED AS: SpB (SPINKS LOAMY SAND, 0–6% SLOPES) – HSG 'A'
3) FLOODPLAIN SUMMARY: FEMA: ZONE A/AE – PER F.I.R.M. PANEL 26161C0290E – NONE EGLE: WATERCOURSE WITH DRAINAGE AREA > 2 SQ. MI. – NONE
4) ALL ABANDONED AND EXISTING UTILITIES TO BE ABANDONED MUST BE REMOVED WHERE LOCATED WITHIN PROPOSED R.O.W. OR BUILDING ENVELOPE. THE RESULTING TRENCH MUST BE SAND BACKFILLED TO 95% COMPACTION.

WETLAND SUMMARY

* SEE SHEET 04

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SECTION 35 | TOWN 3 SOUTH, RANGE 10 EAST | SUPERIOR TOWNSHIP | WASHTENAW COUNTY, MICHIGAN

CLIENT: MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

EXISTING CONDITIONS – PHASE 2

DATE: DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 25 50
1" = 50 FEET

DR. MB | CH. WS/CK

P.M. M BUSH

JOB 19000721

SHEET NO. 03

CAD FILE: 19000721SP-03-EC.DWG

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NATURAL FEATURES NOTES

NATURAL FEATURES ON THE SITE CONSIST OF WETLAND AND TREES, WITH AND EXISTING DRAINAGE DITCH PASSING THROUGH THE SITE WITHIN THE LARGER WETLAND AREA. THE SITE GENERALLY DRAINS TOWARD THE DRAINAGE DITCH THAT FLOWS NORTHEAST INTO THE BAZLEY FOSTER DRAIN. THE HIGH POINT OF THE SITE IS IN THE SOUTHEAST CORNER (EL 743) WITH THE LOW POINT BEING THE DRAINAGE DITCH WHERE IT FLOWS INTO THE BAZLEY FOSTER DRAIN (EL 728).

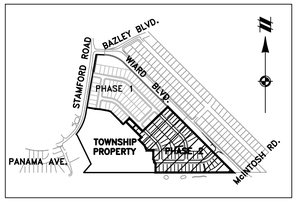
THERE ARE TWO WETLANDS ON THE SITE. THE LARGE WETLAND (H) FOLLOWS THE DRAINAGE DITCH AND EXTENDS OUT INTO ADJACENT LOW-LYING AREAS. THE SMALLER WETLAND (G) IS AN ISOLATED POCKET IN AN EXISTING LOW AREA ALONG THE WEST PERIMETER OF THE PROPOSED AREA TO BE DEVELOPED.

TREES ON THE SITE ALTHOUGH IN GOOD CONDITION, ARE NOT NECESSARILY HIGH QUALITY WITH RESPECT TO SPECIES. THE TREED AREA COVERS MOST OF THE PROPOSED DEVELOPMENT AREA. THE PREDOMINANT SPECIES ARE COTTONWOOD, ELM AND MAPLE RANGING.

WETLAND SUMMARY

* SEE SHEET 03 REGARDING SOURCE OF WETLAND INFORMATION

WETLAND	EX. AREA*	ESTIMATED IMPACT
G	0.01 AC.	±0.002 AC.
H	1.49 AC.	±1.465 AC



KEYMAP
SCALE: 1"=1000'

LEGEND

- 12%-18% SLOPES
- 18%+ SLOPES
- REMOVE WOODS
- EXISTING WETLAND
- WETLAND IMPACTS
- WETLAND BUFFER

SOILS LEGEND

SpB	SPINKS LOAMY SAND 0-6% SLOPES	HYD SOIL GROUP A
Gf	GILFORD SANY LOAM 0-2% SLOPES	HYD SOIL GROUP D/B

NOTE: ONLY SpB SOILS ARE FOUND WITHIN PROPOSED PHASE 2 AREA

PHASE 1 (BUILT)
EX. TREE LINE
DE BOX
SUPERIOR TOWNSHIP FUTURE USE
25' WETLAND BUFFER (TYP.)
WETLAND "G"
PROP. TREE LINE
NORTH-SOUTH 1/4 LINE OF SECTION 35
Gf
SpB
DITCH
WETLAND "H"
MAJORITY OF WETLAND TO BE FILLED
CENTERLINE OF WARD ROAD
SOUTHWESTERLY LINE OF "WASHTENAW AUTUMN No. 1"
PROP. TREE LINE
E-RR
S. 1/4 COR. SEC. 35 T2S-R7E
6' CYCLONE FENCE
YPSILANTI TOWNSHIP
TEE BOX
TEE BOX
S 87°38' 40" W (M.) 2657.77' (M.)
S 87°38' 06" W (R.) 2657.84' (R.)
6 FT. WD. ASPH. CART PATH
6' CYCLONE FENCE

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SECTION 35
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SUPERIOR TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS - PHASE II
PRELIMINARY SITE PLAN

NATURAL FEATURES PLAN

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 25 50
1" = 50 FEET

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P.M. M BUSH
JOB 19000721
SHEET NO. 04

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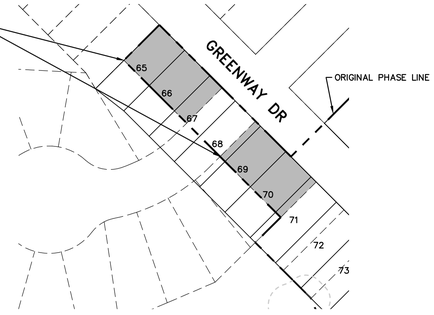
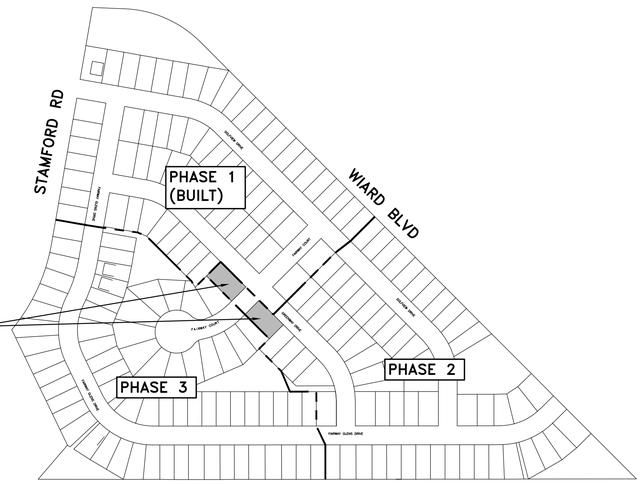
THE SHADED AREA INDICATES 2 LOTS THAT WERE PART OF THE ORIGINAL PHASE 2 LAYOUT WITH FRONTAGE ON THE PROPOSED PHASE 3 CUL-DE-SAC AS SHOWN. WITH THE ELIMINATION OF PHASE 3, THE CUL-DE-SAC WILL NOT BE BUILT, RESULTING IN TWO LOTS PARALLEL TO THE EXISTING GREENWAY DRIVE. THE CURRENT PLAN PROPOSES TO SWAP A PORTION OF CURRENT PHASE 2 PROPERTY WITH ORIGINAL PHASE 3 PROPERTY TO FACILITATE THE CREATION OF TRADITIONAL FRONT-FACING LOTS (65-71) ON GREENWAY DRIVE

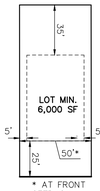


ORIGINAL LOT LAYOUT OVERLAY

SEE LOT OVERLAY, THIS SHEET



ORIGINAL DEVELOPMENT PHASING PLAN



* AT FRONT SETBACK

TYPICAL LOT DETAIL
SCALE: 1" = 50 FEET

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. BUILDING
- EXIST. WETLAND BUFFER
- PROP. SETBACK
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- PROP. BACK OF CURB
- PROP. WALK
- PROP. ASPH.
- PROP. OPEN SPACE
- EXISTING WETLAND
- WETLAND IMPACT
- PROP. PHASE LINE

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PRELIMINARY SITE PLAN

LAYOUT PLAN – OVERALL

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 50 100
1" = 100 FEET

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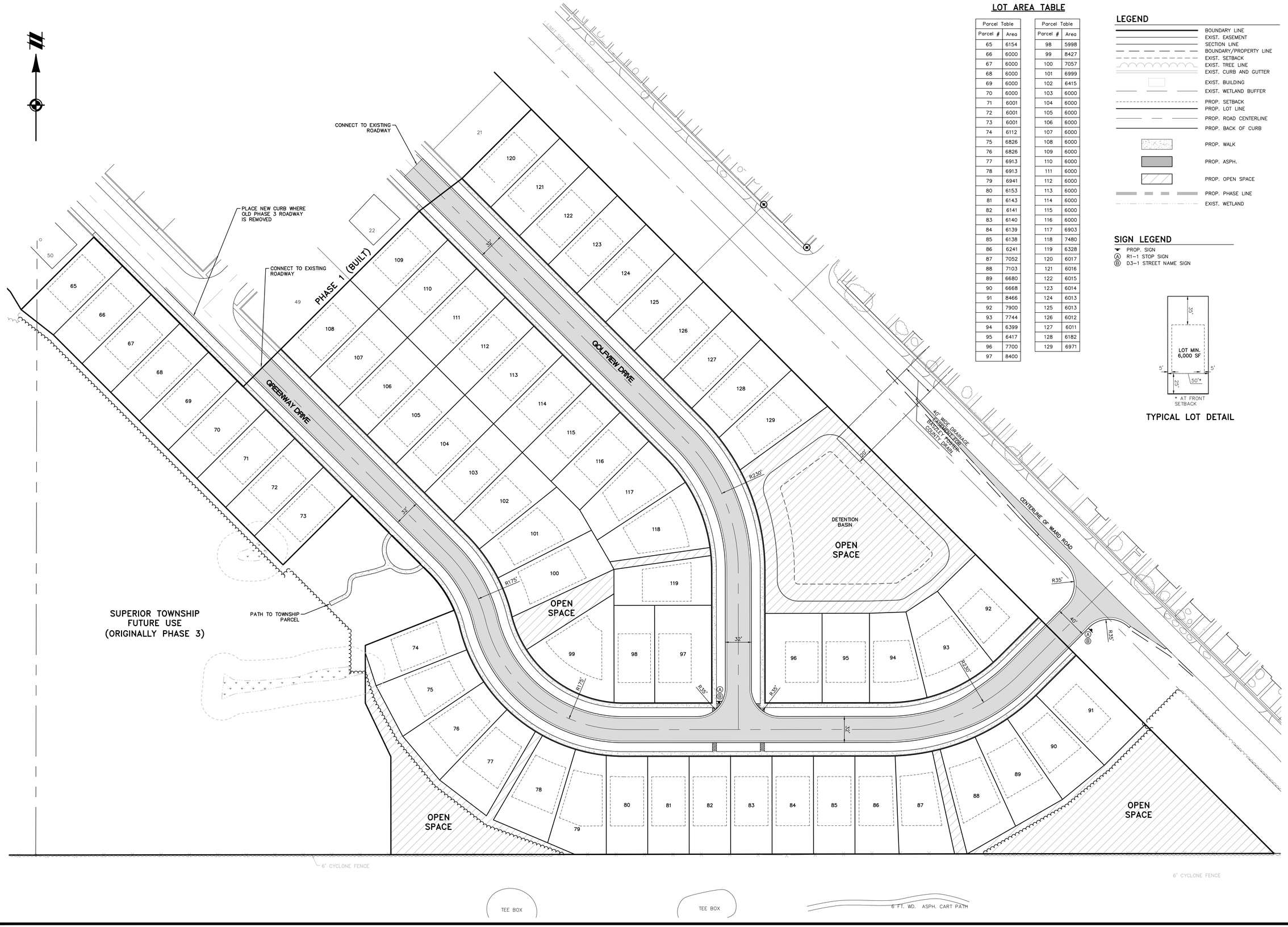

LOT AREA TABLE

Parcel #	Area
65	6154
66	6000
67	6000
68	6000
69	6000
70	6000
71	6001
72	6001
73	6001
74	6112
75	6826
76	6826
77	6913
78	6913
79	6941
80	6153
81	6143
82	6141
83	6140
84	6139
85	6138
86	6241
87	7052
88	7103
89	6680
90	6668
91	8466
92	7900
93	7744
94	6399
95	6417
96	7700
97	8400

Parcel #	Area
98	5998
99	8427
100	7057
101	6999
102	6415
103	6000
104	6000
105	6000
106	6000
107	6000
108	6000
109	6000
110	6000
111	6000
112	6000
113	6000
114	6000
115	6000
116	6000
117	6903
118	7480
119	6328
120	6017
121	6016
122	6015
123	6014
124	6013
125	6013
126	6012
127	6011
128	6182
129	6971

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. BUILDING
- EXIST. WETLAND BUFFER
- PROP. SETBACK
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- PROP. BACK OF CURB
- PROP. WALK
- PROP. ASPH.
- PROP. OPEN SPACE
- PROP. PHASE LINE
- EXIST. WETLAND

SIGN LEGEND

- PROP. SIGN
- R1-1 STOP SIGN
- D3-1 STREET NAME SIGN

TYPICAL LOT DETAIL

Know what's **below.** **Call** before you dig.

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LAYOUT PLAN – PHASE 2

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CAD FILE: 19000721SP-06-L.DWG

UTILITY NARRATIVE

PHASE 2 UTILITIES WILL BE AS FOLLOWS:

WATER – CONNECT TO TWO (2) EXISTING STUBS FROM PHASE 1 AND ALSO PROVIDE A NEW CONNECTION TO EXISTING MAIN ACROSS WIARD BLVD.

SANITARY – CONNECT TO EXISTING SEWER ALONG WIARD BLVD. PROVIDE CONNECTION FROM EXISTING UPSTREAM SYSTEM INTO NEW SYSTEM AS SHOWN. ABANDON / REMOVE EXISTING SEWER FROM CONNECTION POINT TO PROPERTY LINE / WIARD BLVD R.O.W.

STORM – REFER TO DRAINAGE NARRATIVE ON SHEET 08.

NOTES

1. PROPOSED UTILITY EASEMENT WIDTHS:
   WATER MAIN, 12 FEET MIN.
   SANITARY SEWER, 20 FEET MIN.
   STORM SEWER, 20 FEET MIN. (30' FOR CROSS-LOT SWALES)

LEGEND

EXISTING		PROPOSED
	BOUNDARY LINE	
	EASEMENT	
	SECTION LINE	
	SETBACK	
923	CONTOUR	923
	CURB	
	LOT LINE	
	BUILDING	
	WETLAND	
	WETLAND BUFFER	
OHE OHE	OVERHEAD ELEC.	
OHT OHT	OVERHEAD TELE.	
TV TV	CABLE LINE	
U MH U	UNSPECIFIED UTIL	
G G	GAS LINE	
CB MH FES	STORM SEWER	FES MH CB (10)
HYD W VALVE	WATER MAIN	HYD W VALVE H# V#
MH	SANITARY SEWER	MH (26)
	WALL	

SANITARY SEWER BASIS OF DESIGN

Total No. of Single Family Lots:		65 Lots	
No. of Users per Lot:		3.5 Persons	
Total Expected Population Served:		228 Persons	
Average Daily Flow (per capita):		100 G.P.D.	
Peaking Factor:	18+√(POP/1000) / 4+√(POP/1000)	4.13	
Average Flow:	POP * 100 =	**22,800 G.P.D.**	
	=	15.8 G.P.M.	
	=	0.035 C.F.S.	
Peak Flow:	22,800 * 4.13 =	**94,090 G.P.D.**	
	=	65.3 G.P.M.	
	=	0.146 C.F.S.	
Pipe Capacity:	10 in. diameter	A=	0.545 sf
	0.40% slope	R=	0.208 ft
	0.013 Manning's 'n'		
	Manning's Capacity =	1.389 C.F.S.	
	Velocity Flowing Full =	2.55 F.P.S.	

WATER MAIN BASIS OF DESIGN

No. of Single Family Lots:	65 Lots	
No. of Users per Lot:	3.5 Persons	
Total Expected Population Served:	228 Persons	
Average Daily Flow (per capita):	100 G.P.D.	
Peaking Factor:	18+√(POP/1000) / 4+√(POP/1000)	4.13
Average Demand:	POP * 100 =	**22,800 G.P.D.**
	=	15.8 G.P.M.
	=	0.035 C.F.S.
Peak Demand:	22,800 * 4.13 =	**94,090 G.P.D.**
	=	65.3 G.P.M.
	=	0.146 C.F.S.

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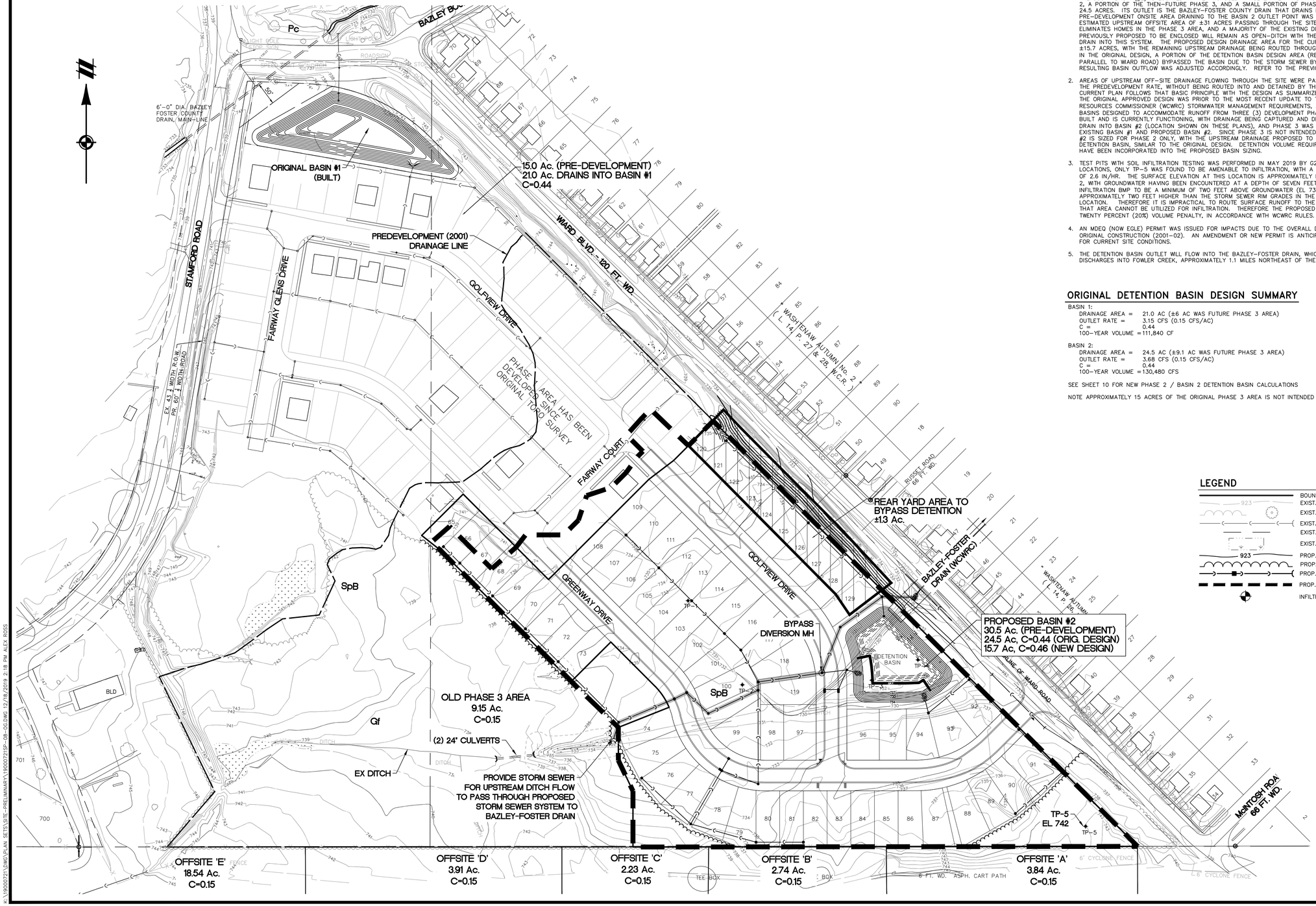

STORMWATER MANAGEMENT NARRATIVE

1. THIS SITE WAS ORIGINALLY PROPOSED AND APPROVED IN 2001–02 AS A 196 LOT, THREE–PHASE DEVELOPMENT WITH TWO DETENTION BASINS DESIGNED TO CAPTURE AND DETAIN THE 100–YEAR STORM EVENT USING THE RULES AND REGULATIONS IN EFFECT AT THAT TIME.

   THE NORTH BASIN (#1) WAS BUILT AS PART OF PHASE 1 OF THE DEVELOPMENT, AND DETAINS A MAJORITY OF PHASE 1 AND A PORTION OF THE THEN–FUTURE PHASE 3, WITH A DESIGN DRAINAGE AREA OF 21.0 ACRES. THE PREDEVELOPMENT ONSITE AREA DRAINING TO THE BASIN 1 OUTLET POINT WAS 15.0 ACRES. THERE ARE CURRENTLY NO PLANS TO DEVELOP THE PHASE 3 AREA, WHICH WILL REDUCE THE OVERALL AMOUNT OF RUNOFF TO BASIN 1 HOWEVER NO CHANGES TO THE BASIN ARE PROPOSED SINCE IT HAS ALREADY BEEN BUILT.

   THE SOUTH BASIN (#2) IS LOCATED IN THE PROPOSED PHASE 2 AREA AND WAS ORIGINALLY DESIGNED TO DETAIN PHASE 2, A PORTION OF THE THEN–FUTURE PHASE 3, AND A SMALL PORTION OF PHASE 1, WITH A DESIGN DRAINAGE AREA OF 24.5 ACRES. ITS OUTLET IS THE BAZLEY–FOSTER COUNTY DRAIN THAT DRAINS NORTHEAST UNDER WIARD ROAD. THE PRE–DEVELOPMENT ONSITE AREA DRAINING TO THE BASIN 2 OUTLET POINT WAS 30.5 ACRES, WITH AN ADDITIONAL ESTIMATED UPSTREAM OFFSITE AREA OF ±31 ACRES PASSING THROUGH THE SITE. THE CURRENT DEVELOPMENT PLAN ELIMINATES HOMES IN THE PHASE 3 AREA, AND A MAJORITY OF THE EXISTING DITCH DRAINAGE SYSTEM THAT WAS PREVIOUSLY PROPOSED TO BE ENCLOSED WILL REMAIN AS OPEN–DITCH WITH THE OLD "PHASE 3" AREA CONTINUING TO DRAIN INTO THIS SYSTEM. THE PROPOSED DESIGN DRAINAGE AREA FOR THE CURRENT PHASE 2 DETENTION BASIN PLAN IS ±15.7 ACRES, WITH THE REMAINING UPSTREAM DRAINAGE BEING ROUTED THROUGH THE SITE WITHOUT REQUIRING DETENTION. IN THE ORIGINAL DESIGN, A PORTION OF THE DETENTION BASIN DESIGN AREA (REAR YARDS OF 11 LOTS NORTH OF BASIN 2 PARALLEL TO WIARD ROAD) BYPASSED THE BASIN DUE TO THE STORM SEWER BYPASS THROUGH THAT AREA, AND THE RESULTING BASIN OUTFLOW WAS ADJUSTED ACCORDINGLY. REFER TO THE PREVIOUSLY APPROVED PLANS FOR REFERENCE.

2. AREAS OF UPSTREAM OFF–SITE DRAINAGE FLOWING THROUGH THE SITE WERE PASSED THROUGH THE PROPOSED SYSTEM AT THE PREDEVELOPMENT RATE, WITHOUT BEING ROUTED INTO AND DETAINED BY THE PROPOSED DETENTION BASIN. THE CURRENT PLAN FOLLOWS THAT BASIC PRINCIPLE WITH THE DESIGN AS SUMMARIZED BELOW.
   THE ORIGINAL APPROVED DESIGN WAS PRIOR TO THE MOST RECENT UPDATE TO THE WASHTENAW COUNTY WATER RESOURCES COMMISSIONER (WCWRC) STORMWATER MANAGEMENT REQUIREMENTS, AND CONSISTED OF TWO (2) DETENTION BASINS DESIGNED TO ACCOMMODATE RUNOFF FROM THREE (3) DEVELOPMENT PHASES. PHASE 1 OF THE PROJECT WAS BUILT AND IS CURRENTLY FUNCTIONING, WITH DRAINAGE BEING CAPTURED AND DETAINED. PHASE 2 WAS DESIGNED TO DRAIN INTO BASIN #2 (LOCATION SHOWN ON THESE PLANS), AND PHASE 3 WAS PLANNED TO DIRECT FLOW TO BOTH EXISTING BASIN #1 AND PROPOSED BASIN #2. SINCE PHASE 3 IS NOT INTENDED TO BE DEVELOPED AT THIS TIME, BASIN #2 IS SIZED FOR PHASE 2 ONLY, WITH THE UPSTREAM DRAINAGE PROPOSED TO PASS–THROUGH AND BYPASS THE DETENTION BASIN, SIMILAR TO THE ORIGINAL DESIGN. DETENTION VOLUME REQUIREMENTS PER CURRENT WCWRC RULES HAVE BEEN INCORPORATED INTO THE PROPOSED BASIN SIZING.

3. TEST PITS WITH SOIL INFILTRATION TESTING WAS PERFORMED IN MAY 2019 BY G2 CONSULTING GROUP. OF THE FIVE TEST LOCATIONS, ONLY TP–5 WAS FOUND TO BE AMENABLE TO INFILTRATION, WITH A RECOMMENDED DESIGN INFILTRATION RATE OF 2.6 IN/HR. THE SURFACE ELEVATION AT THIS LOCATION IS APPROXIMATELY EL 742.0 AT THE HIGHEST PART OF PHASE 2, WITH GROUNDWATER HAVING BEEN ENCOUNTERED AT A DEPTH OF SEVEN FEET (7'), OR EL 735.0. WCWRC REQUIRES AN INFILTRATION BMP TO BE A MINIMUM OF TWO FEET ABOVE GROUNDWATER (EL 737.0 IN THIS AREA) WHICH IS APPROXIMATELY TWO FEET HIGHER THAN THE STORM SEWER RIM GRADES IN THE REAR YARDS CLOSEST TO THE TEST PIT LOCATION. THEREFORE IT IS IMPRACTICAL TO ROUTE SURFACE RUNOFF TO THE TP–5 AREA AND THE SOILS FOUND IN THAT AREA CANNOT BE UTILIZED FOR INFILTRATION. THEREFORE THE PROPOSED BASIN DESIGN WILL ACCOUNT FOR A TWENTY PERCENT (20%) VOLUME PENALTY, IN ACCORDANCE WITH WCWRC RULES.

4. AN MDEQ (NOW EGLE) PERMIT WAS ISSUED FOR IMPACTS DUE TO THE OVERALL DEVELOPMENT AT THE TIME OF THE ORIGINAL CONSTRUCTION (2001–02). AN AMENDMENT OR NEW PERMIT IS ANTICIPATED TO BE NECESSARY TO ACCOUNT FOR CURRENT SITE CONDITIONS.

5. THE DETENTION BASIN OUTLET WILL FLOW INTO THE BAZLEY–FOSTER DRAIN, WHICH CONTINUES NORTHEAST AND ULTIMATELY DISCHARGES INTO FOWLER CREEK, APPROXIMATELY 1.1 MILES NORTHEAST OF THE PROJECT.

ORIGINAL DETENTION BASIN DESIGN SUMMARY

BASIN 1:
- DRAINAGE AREA = 21.0 AC (±6 AC WAS FUTURE PHASE 3 AREA)
- OUTLET RATE = 3.15 CFS (0.15 CFS/AC)
- C = 0.44
- 100–YEAR VOLUME = 111,840 CF

BASIN 2:
- DRAINAGE AREA = 24.5 AC (±9.1 AC WAS FUTURE PHASE 3 AREA)
- OUTLET RATE = 3.68 CFS (0.15 CFS/AC)
- C = 0.44
- 100–YEAR VOLUME = 130,480 CFS

SEE SHEET 10 FOR NEW PHASE 2 / BASIN 2 DETENTION BASIN CALCULATIONS

NOTE APPROXIMATELY 15 ACRES OF THE ORIGINAL PHASE 3 AREA IS NOT INTENDED TO BE DEVELOPED.

811 Know what's **below.** **Call** before you dig.

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FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

DRAINAGE PLAN – OVERALL

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REVISIONS

SCALE 0 25 50
1" = 50 FEET

DR. MB | CH. WS/CK

P.M. M BUSH

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LEGEND

- BOUNDARY LINE
- EXIST. CONTOUR
- EXIST. TREE LINE / TREE
- EXIST. STORM
- EXIST. WETLAND BUFFER
- EXIST. WETLAND
- PROP. CONTOUR
- PROP. STORM SEWER
- PROP. OVERALL DRAINAGE AREA
- INFILTRATION TEST PIT LOCATION

PERMANENT MAINTENANCE

TO BE PERFORMED BY OWNER OR OWNER'S REP.

TASKS	COMPONENTS: PAVED AREAS	PERVIOUS AREAS	RIP-RAP/SILT FENCE	STORM DRAINAGE SYSTEM	CATCH BASIN SUMPS	CATCH BASIN INLET COVER	PERFORATED RISER	SEDIMENT FOREBAY	DETENTION AREA	EMERGENCY OVERFLOW	SCHEDULE	ESTIMATED ANNUAL COST
INSPECT FOR SEDIMENT ACCUMULATION	X		X	X	X	X		X	X		SEMI-ANUALLY/AS NEEDED*	$100
REMOVAL OF SEDIMENT ACCUMULATION	X		X	X	X	X		X	X		ANUALLY/AS NEEDED*	$300
INSPECT FOR FLOATABLES AND DEBRIS				X	X		X	X	X		ANNUALLY	$50
CLEANING FOR FLOATABLES AND DEBRIS				X	X		X	X	X		ANNUALLY	$100
INSPECTION FOR EROSION		X	X					X	X	X	SEMI-ANNUALLY	$50
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X						X	X	X	AS NEEDED	$200
CLEAN DRIVES AND PARKING LOTS	X										ANNUALLY	$300
INSPECT PRIVATE ROADS	X										ANNUALLY	$100
CRACK SEALING / PAVEMENT REPAIR	X										AS NEEDED	$200
MOWING		X							X	X	AS NEEDED, 0-2 TIMES/YEAR	$200
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS-BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)			X	X			X	X	X	X	ANNUALLY/AS NEEDED**	$100
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED BY ANNUAL WET WEATHER INSPECTION			X	X			X	X	X	X	AS NEEDED**	$100
KEEP RECORDS OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES AND REPORT TO PROPERTY OWNER											ANNUALLY	$50
KEEP RECORDS OF ALL COSTS FOR INSPECTIONS, MAINTENANCE AND REPAIRS. REPORT TO PROPERTY OWNER											ANNUALLY	$50
PROPERTY OWNER REVIEWS COST EFFECTIVENESS OF THE PREVENTATIVE MAINTENANCE PROGRAM AND MAKES NECESSARY ADJUSTMENTS											ANNUALLY	$50
OWNER TO HAVE A PROFESSIONAL ENGINEER CARRY OUT EMERGENCY INSPECTIONS UPON IDENTIFICATION OF SEVERE PROBLEMS											AS NEEDED	$100

* "AS NEEDED" MEANS WHEN SEDIMENT HAS ACCUMULATED TO A DEPTH OF 6 INCHES OR GREATER

** DETENTION BASIN AND FOREBAY SHALL BE INSPECTED AND REPAIRED AS NEEDED FOLLOWING STORMS OF 1 INCH OR MORE.

NOTE: NO CHEMICALS ARE ALLOWED IN STORMWATER FEATURES OR BUFFER ZONES WITH THE FOLLOWING EXCEPTION: INVASIVE SPECIES MAY BE TREATED WITH CHEMICALS BY A CERTIFIED APPLICATOR.

NOTES

1. SEE SHEET 08 FOR STORMWATER DRAINAGE NARRATIVE
2. SEE SHEET 10 FOR DETENTION BASIN DESIGN

FAIRWAY COURT

PHASE 1 (BUILT)

GREENWAY DRIVE

GOLFVIEW DRIVE

SUPERIOR TOWNSHIP
FUTURE USE

BYPASS MANHOLE
STRUCTURE (MH3)

DETENTION
BASIN

30.5 Ac. (EXISTING)
15.7 Ac. DRAINS INTO BASIN #2
24.5 Ac. (ORIG. DESIGN)

CENTERLINE OF WARD ROAD

SpB

24" R.C.P.
INV. 735.49

24" R.C.P.
INV. 735.63

(2) 24" RCP
W/ HEADWALLS

24" R.C.P.
INV. 732.41

24" R.C.P.
INV. 734.84

EX 24"
CULVERTS (2)

ORIGINAL DESIGN PLANS PROVIDED FOR UPSTREAM DRAINAGE TO PASS-THROUGH THE PROPOSED SITE VIA STORM SEWER AND A BYPASS MANHOLE WITH INTERNAL WEIR. SHADED PIPE INDICATES FLOW-THROUGH STORM SEWER

DITCH

WATER VALVE
RIM 742.24

6' CYCLONE FENCE

TEE BOX

TEE BOX

6 FT. WD. ASPH. CART PATH

8" W. WATERMAIN

W FG HYD

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SHEET NO.
09

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CAD FILE: 19000721SP-09-G.DWG

Project: Fairway Glens
Location: Superior Twp
Description: Basin #2 - PSP Phase 2 only - 15' min. buffer all sides (1:3 side slopes)

Date: 12/12/2019
By: Atwell

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 15.7 Acres
Total Disturbed Area = 15.7 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	A	241,956	5.55	0.95	229,858
Water Surface (Bank full EL)	A	23,522	0.54	1.00	23,522
Developed Open Space, Good Condition	A	419,672	9.63	0.15	62,951
Developed Open Space, Good Condition		0	0.00		0
				Total - Sum (c)(Area) =	316,331
				Area Total (sf)=	685,150
				Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=	**0.46**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed Open Space, Good Condition	A	419,672	9.63	39	16,367,192
Developed Open Space, Good Condition		0	0.00		0
				Total - Sum (CN)(Area) =	16,367,192
				Area Total - Sum(ac) of Sum(sf)=	419,672
				Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=	**39**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	A	241,956	5.55	98	23,711,688
Water Surfaces	A	23,522	0.54	98	2,305,195
			0.00		0
				Total - Sum (CN)(Area) =	26,016,883
				Area Total - Sum(ac) of Sum(sf)=	265,478
				Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=	**98**

W2 First Flush Runoff Calculations (Vff)

A. Vff = (1") (1/12) (43560/1) (C) AC = **26,216** cf

W3 Predevelopment Bankfull Runoff Calculations (Vbf-pre)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN *(Meadow)*	CN =	30	
C.	S = (1000/CN)-10	S =	23.33	in
D.	Q = (P-0.25)^2/(P+0.8S)	Q =	0.26	in
E.	Pervious Cover Area	Area =	685,150	sf
F.	$V_{bf\text{-}pre}$ = Q(1/12)Area	$V_{bf\text{-}pre}$ =	**14,580**	cf

W4 Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN	CN =	39	
C.	S = (1000/CN)-10	S =	15.64	in
D.	Q = (P-0.25)^2/(P+0.8S)	Q =	0.04	in
E.	Pervious Cover Area	Area =	419,672	sf
F.	$V_{bf\text{-}per\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}per\text{-}post}$ =	**1,425**	cf

W5 Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Impervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.25)^2/(P+0.8S)	Q =	2.12	in
E.	Impervious Cover Area	Area =	265,478	sf
F.	$V_{bf\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}imp\text{-}post}$ =	**46,938**	cf

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	39	
C.	S = (1000/CN)-10	S =	15.64	in
D.	Q = (P-0.25)^2/(P+0.8S)	Q =	0.22	in
E.	Pervious Cover Area	Area =	419,672	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**7,794**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.25)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	265,478	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**107,806**	cf

W8 Determine Time of Concentration (Tc-hrs)

User specified; assume 25 minutes for storm sewer
Time of Concentration = 0.42 hr

W9 Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

V_{bf} = **26,216 cf***
$V_{bf\text{-}pre}$ = 14,580 cf
$V_{bf\text{-}per\text{-}post}$ = 1,425 cf **Total BF Volume ($V_{bf\text{-}post}$)**
$V_{bf\text{-}imp\text{-}post}$ = 46,938 cf 48,363 cf

$V_{100\text{-}per\text{-}post}$ = 7,794 cf **Total 100-year Volume (V_{100})**
$V_{100\text{-}imp\text{-}post}$ = 107,806 cf 115,601 cf

B. Determine Onsite Infiltration Requirement

$V_{bf\text{-}post}$ = 48,363 cf
$V_{bf\text{-}pre}$ = 14,580 cf
Bankfull Volume Difference = **33,783 cf***

Onsite Infiltration Requirement (V_{Inf}) = **33,783** cf

W10 Detention / Retention Requirement

A.	Q_o = 238.6 (T_c) ^ -0.82	489.15	cfs/in-mi^2
B.	Total Site Area	15.7	ac
C.	Q_{100} = $Q_{100\text{-}per}$ + $Q_{100\text{-}imp}$	5.10	in
D.	Peak Flow (PF) = (Q_o-Q_{100}-A)/640	61.148	cfs
E.	Delta = PF - 0.15A	58.793	cfs
F.	V_{det} = (Delta/PF) x V_{100} Calculated Detention (unadjusted) =	**111,148**	cf

W11 Determine Applicable BMPs and Associated Volume Credits

N/A (assume no Infiltration)

W12 Infiltration / Detention Summary

Total BMP Credits Required per WCWRC Rules:	33,783	cf
Total BMP Credits Provided:	0	cf
Difference:	(33,783)	cf
% Deficiency:	100.0%	
Volume Penalty (prorated up to 20% based on BMP deficiency):	**20.0%**	
Detention Volume adjusted for BMP credits, V_{adj}	111,148	cf
Detention Volume required inc. Penalty, V_{req} 120.0%	**133,378**	cf

DET Detention Basin Summary

Elevation	Surface Area (SF)	Depth (FT)	Cumulative Volume (CF)	First Flush Zff	Bank Full Zbf	100-Year Z100
Zo 727.10	19,400	0	0	26,216	48,363	133,378
728.0	20,900	0.9	18,131	-	-	-
729.0	22,700	1.0	39,925	728.37	-	-
730.0	24,500	1.0	63,519	-	729.36	-
731.0	26,400	1.0	88,963	-	-	-
732.0	28,300	1.0	116,307	-	-	-
733.0	30,300	1.0	145,602	-	-	732.58
734.0	32,300	1.0	176,896	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
				Design Elevations:	**728.40**	**729.40**	**732.60**

Total Basin Volume Provided to EL 734 = = 176,896 cf
Freeboard Provided = Top of Bank - Z100 = 1.40 ft
Bankfull Pond Area = Area @ Zbf = 0.54 ac

FOREBAY Forebay Summary

Required Volume (Vfb)=0.05*V_{det} **6,669** cf

Forebay Geometry (West)

Elevation	Surface Area (SF)	Depth (FT)	Cumulative Volume (CF)	5% Forebay
727.1	3,300	0	0	6,669
728	4,000	1	3,280	-
729	4,700	1	7,625	728.78
730	5,500	1	12,720	-
			Design Elevation:	**728.80**

100%

OUTLET Outlet Control Structure Sizing

1. Standpipe outlet holes sizing - "first flush" runoff

First Flush discharge should be released from in 24 hours

Qff = Vff / 24 hrs / 3600 sec Qff= 0.303 cfs
hff(ave) = 2/3 x (Zff - Zo) hff(ave) = 0.867 ft
Aff(required) = Qff / 0.62 x sqrt(2*32.2*h) A(required) = 0.066 sf
Selected Orifice Diameter = **1** **in**
Area of each orifice = 0.005 sf
Number of orifice holes provided = **11** **holes at elev. 727.10**

Check First Flush discharge release time

Aff(actual) = 0.0600 ft^2
Qff = A x 0.62 x sqrt(2*32.2*h) = 0.2779 cfs
Tff = Vff / (Qff x 3600) 26.2 hrs O.K.

2. Standpipe outlet holes sizing - "Bankfull flood" discharge

Bankfull should discharge within 36 to 48 hours
Check release from first flush holes only

hbf(ave) = 2/3 x (Zbf - Zo) hbf(ave) = 1.53 ft
Qbf = A x 0.62 x sqrt(2*32.2*h) = Qbf = 0.369 cfs
Tbf = Vbf / (Qbf x 3600) = Tbf = 36.4 hr O.K.

Bankfull detained between 36-48 hrs using First Flush holes only - no add'l holes required
Number of orifice holes provided = = **0** **holes at elev. 728.40**

3. Standpipe outlet holes sizing - "100-yr flood" discharge

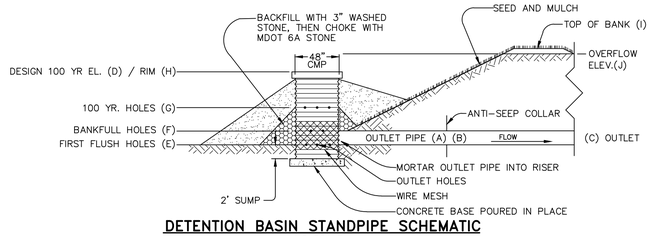
Q100 = Qa Q100 = 2.36 cfs
Release from above holes
hff = (Z100-Zo) hff = 5.50 ft
hbf = (Z100-Zff) hbf = 4.20 ft
Q = A x 0.62 x sqrt(64.4*hff) + A x 0.62 x sqrt(64.4*hbf) = 0.70 cfs
Remaining flow = Q100-Q= 1.65 cfs
A = Q100 /(.62 x sqrt(2*32.2*h)) A(required) = 0.19 sf
Selected Orifice Diameter = **1.5** **in**
Area of each orifice = 0.0123 sf
Number of orifice holes required = = **15** **holes at elev. 729.40**

4. Riser Outlet Pipe Design

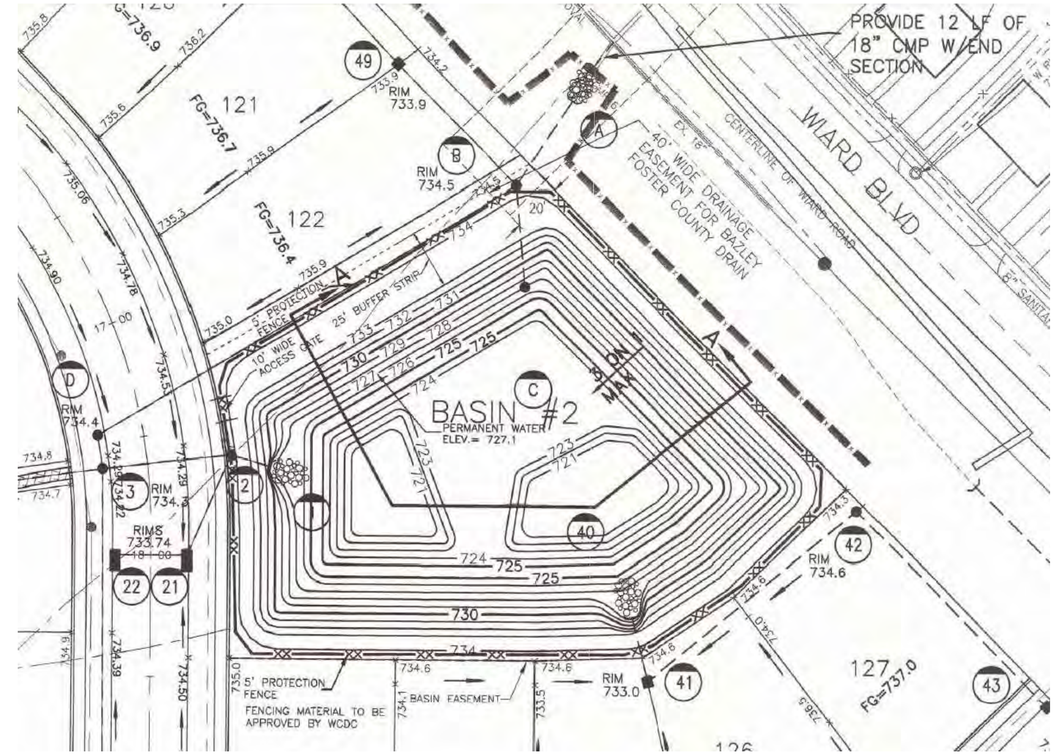
Outlet pipe designed to handle the 100-year restricted flow

100-year restricted flow = Q= 2.36 cfs
Choose outflow pipe diameter = d= **18** **in**
Choose outflow pipe slope = S= **0.2** %
Assume roughness factor n= 0.013
Flow velocity at 100-yr restricted flow (Mannings) = V= 2.66 fps
Design Pipe Capacity = = 4.70 cfs OK

BASIN ELEVATIONS		OUTLET RISER DATA (SEE DETAIL)		
OUTLET	727.10	A	OUTLET PIPE:	18 IN
	727.10	B	OUTLET PIPE:	0.2%
FIRST FLUSH	728.40	C	OUTLET INVERT:	727.02
BANKFULL	729.40	D	DESIGN ELEVATION =:	732.60
DESIGN HWL	732.60	E	FIRST FLUSH DISCHARGE:	(11) 1 IN. HOLES AT EL. 727.1
FOREBAY		F	BANKFULL DISCHARGE:	THRU FIRST FLUSH HOLES
BOTTOM	727.10	G	DESIGN DISCHARGE:	(15) 1.5 IN. HOLES AT EL. 729.4
TOP	730.00	H	OVERFLOW RIM:	732.85
		I	TOP OF BANK EL.	734.00
		J	SPILLWAY EL.	732.85

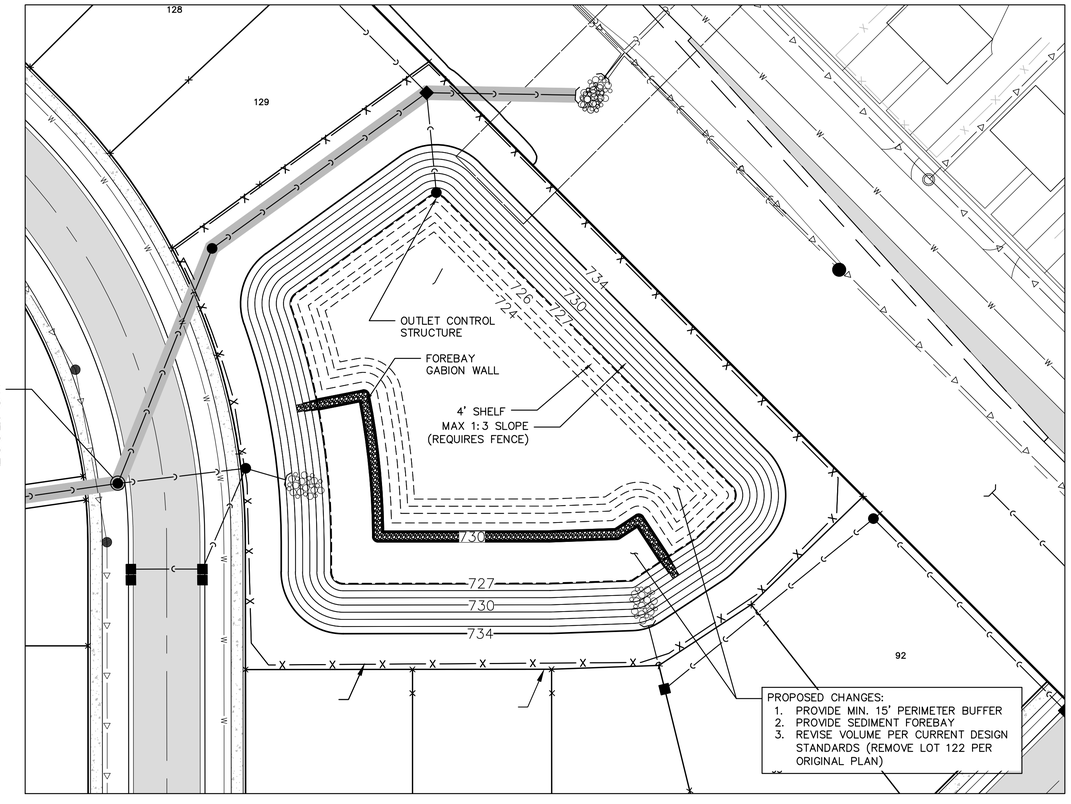


DETENTION BASIN STANDPIPE SCHEMATIC
NO SCALE



ORIGINAL BASIN DESIGN (FOR REFERENCE)

BYPASS MANHOLE STRUCTURE (MH3) PER ORIGINAL DESIGN, TO ALLOW UPSTREAM OFFSITE DRAINAGE TO PASS-THROUGH TO BAZLEY-FOSTER DRAIN



PROPOSED BASIN DESIGN

ATWELL
866.850.4200 www.atwell-group.com
311 NORTH MAIN
ANN ARBOR, MI 48104
734.994.4000

SECTION 35
TOWN 3 SOUTH, RANGE 10 EAST
SUPERIOR TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

DETENTION BASIN CALCULATIONS

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 15 30
1" = 30 FEET

DR. MB CH. WS/CK
P.M. M BUSH
JOB 19000721
SHEET NO. 10

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CAD FILE: 19000721SP-09-G.DWG

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
AR	22	Acer rubrum	Red Maple	2.5" cal.	B&B
LT	14	Liriodendron tulipfera	Tuliptree	2.5" cal.	B&B
QM	12	Quercus macrocarpa	Bur Oak	2.5" cal.	B&B
TA	23	Tilia americana	Basswood	2.5" cal.	B&B

LANDSCAPE REQUIREMENTS

LANDSCAPE REQUIREMENTS DETERMINED PER CONSENT JUDGEMENT SECTION 2.26 STREET TREES WHICH STATES " DEVELOPER SHALL BE RESPONSIBLE FOR INSTALLING, WITHIN THE STREET RIGHT OF WAY, ONE (1) STREET TREE FOR EVERY INDIVIDUAL LOT FRONTAGE ACCORDING TO THE APPROVED LANDSCAPE PLAN."

*ONLY LANDSCAPING FOR THE PROPOSED PHASE WAS INCLUDED IN THE CONSIDERATION FOR LANDSCAPE REQUIREMENTS.

1. STREET TREES:
   - 1 PER EVERY INDIVIDUAL LOT FRONTAGE (ALSO GUIDED BY UTILITY LEADS AND DRIVEWAYS)

REQUIRED: 65 PROPOSED = 65 STREET TREES

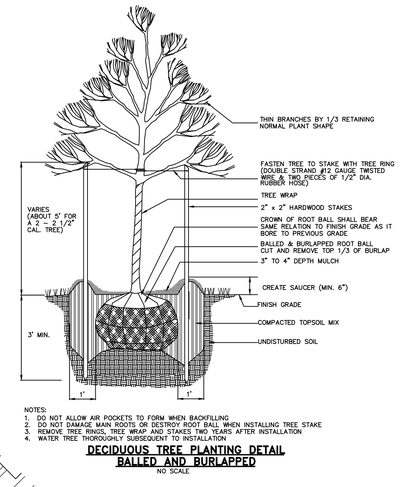
PROVIDED: 65 STREET TREES

LANDSCAPE LEGEND

- STREET TREE
- OPEN SPACE TREE
- BASIN TREE

LANDSCAPE NOTES

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES.
2. LANDSCAPING OPERATIONS, INCLUDING PLANTING OF TREES AND SHRUBS, SHALL NOT DAMAGE ANY UTILITY OR INTERRUPT ANY UTILITY SERVICE, AND SHALL NOT DAMAGE OR CREATE A NUISANCE AFFECTING ADJACENT PROPERTY, PUBLIC STREETS, OR SIDEWALKS.
3. PLANT AND GRASS MATERIALS SHALL BE INSTALLED ACCORDING TO GENERALLY ACCEPTED PLANTING PROCEDURES.
4. ALL PARKING LOT ISLANDS, BOULEVARDS, OPEN OR OTHERWISE DISTURBED AREAS THAT ARE NOT SPECIFIED WITH OTHER PLANTING, PAVING OR SEED MIXTURES SHALL BE PLANTED WITH A STANDARD PERMANENT GRASS SEED MIXTURE TO INDUSTRY STANDARDS.
5. LANDSCAPING MATERIALS THAT ARE UNSIGHTLY, DEAD, DYING, OR THAT BECOME UNHEALTHY BECAUSE OF DAMAGE, NEGLECT, DRAINAGE PROBLEMS, DISEASE, INSECT INFESTATION, OR OTHER CAUSES SHALL BE REPLACED WITHIN ONE YEAR, OR THE NEXT PLANTING PERIOD, WHICHEVER OCCURS FIRST. REPLACEMENT MATERIALS SHALL MEET ALL STANDARDS OF THE ORIGINAL INSTALLATION.
6. ALL LANDSCAPED AREAS SHALL BE PROVIDED WITH AN ADEQUATE WATER SUPPLY.
7. THE PROPERTY OWNER (OR ANY APPLICABLE OWNER'S ASSOCIATION) SHALL BE RESPONSIBLE TO ENSURE THE PROPER CARE AND MAINTENANCE OF LANDSCAPE AREAS, INCLUDING KEEPING ALL LANDSCAPE MATERIALS IN A HEALTHY AND GROWING STATE. ALL LANDSCAPE ELEMENTS SUCH AS, BUT NOT LIMITED TO, FENCES, SCREENS, WALLS, OR LIGHTING SHALL BE KEPT IN GOOD REPAIR.
8. TOPSOIL REMOVED DURING CONSTRUCTION SHALL BE STOCKPILED IN AN APPROPRIATE MANNER TO PREVENT EROSION, AND SHALL BE REDISTRIBUTED ON RE-GRADED SURFACES TO BE LANDSCAPED, TO PROVIDE A MINIMUM OF FOUR INCHES OF EVEN COVER. THE TOPSOIL SHALL THEN BE PERMANENTLY STABILIZED BY GRASS, GROUND COVER, OR OTHER PLANTINGS.
9. NO PLANT MATERIAL SHALL BE PLANTED CLOSER THAN 4 FEET FROM ANY PROPERTY LINE.
10. REMOVE ALL TWINE, WIRE, NURSERY GUARDS, TAGS AND INORGANIC MATERIAL FROM ROOT BALL. PEEL BACK THE BURLAP FROM EARTH BALLS AND REMOVE ANY BURLAP, TWINE OR WIRE AROUND THE TRUNK FLARE AND ABOVE.
11. ALL PLANTING AREAS ARE TO BE EXCAVATED OF ALL BUILDING / CONSTRUCTION AND FILL MATERIALS AND BACKFILLED WITH GOOD MEDIUM TEXTURED PLANTING SOIL. SEEDING AREAS ARE TO BE TREATED WITH 4" OF NEW TOPSOIL AND ROTOTILLED OR OTHERWISE SCARIFIED TO BREAK UP COMPACTION AT LEAST 8" BELOW THE TOPSOIL.
12. TOPSOIL SHALL BE SCREENED AND SUITABLE FOR GROWING VEGETATION AND MEET AT A MINIMUM ASTM D-5268 AND MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
13. RECOMMENDED PLANTING DATES ARE MARCH 15 TO JUNE 15 AND SEPTEMBER 15 TO NOVEMBER 15.
14. ALL DISTURBED SOIL IN STORMWATER SYSTEMS MUST BE PLANTED WITH PERENNIAL PLANTINGS TO PROVIDE FOR PERMANENT SOIL STABILIZATION AS CALLED FOR IN THE SOIL EROSION CONTROL PERMIT.
17. PLANTING SOILS MUST BE AMENDED WITH A COMPOSTED ORGANIC MATERIAL. SOILS MUST BE FREE OF CONSTRUCTION DEBRIS AND SUBSOILS. A RECOMMENDED SOIL BLEND INCLUDES 20 TO 30 PERCENT COMPOST.
18. AT THE TIME OF PLANT AND SEED DELIVERY, A WCWRC LANDSCAPE REVIEWER MUST BE PRESENT. THE QUANTITY AND SPECIES DELIVERED WILL BE REVIEWED ON SITE. CONTACT CATIE WYTYCHAK AT WYTYCHAKC@WASHTENAW.ORG OR (734) 222-6813 TO COORDINATE.



NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE
3. REMOVE TREE RINGS, TREE WRAP AND STAKES TWO YEARS AFTER INSTALLATION
4. WATER TREE THOROUGHLY SUBSEQUENT TO INSTALLATION

DECIDUOUS TREE PLANTING DETAIL
BALLED AND BURLAPPED
NO SCALE

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. CURB AND GUTTER
- EXIST. WETLAND
- EXIST. WETLAND BUFFER
- EXIST. STORM
- EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. UNSPECIFIED UTILITY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. SETBACK
- PROP. BACK OF CURB
- PROP. ASHPALT
- PROP. STORM SEWER
- PROP. SANITARY
- PROP. WATER MAIN
- PROP. END SECTION
- PROP. CATCH BASIN/INLET
- PROP. WATER VALVE
- PROP. FIRE HYDRANT
- PROP. MANHOLE

GRESSWAY DRIVE
GOLFVIEW DRIVE
CENTERLINE OF WARD ROAD
DETENTION BASIN
40' WIDE DRAINAGE EASEMENT FOR BATTERY 7 FOOTER COUNTY DRAIN
W.C. HYD
S.S. MANHOLE
S.S. WATERMAIN
W WATER VALVE RIM 742.24
6' CYCLONE FENCE
TEE BOX
TEE BOX
6 FT. WD. ASPH. CART PATH

ATWELL
866.850.4200 www.atwell-group.com
311 NORTH MAIN
ANN ARBOR, MI 48104
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SECTION 35 TOWN 3 SOUTH, RANGE 10 EAST SUPERIOR TOWNSHIP WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

LANDSCAPE PLAN – PHASE 2

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 25 50
1" = 50 FEET

DR. MB | CH. WS/CK

P.M. M BUSH

JOB 19000721

SHEET NO. 11

CAD FILE: 19000721SP-10-LS.DWG

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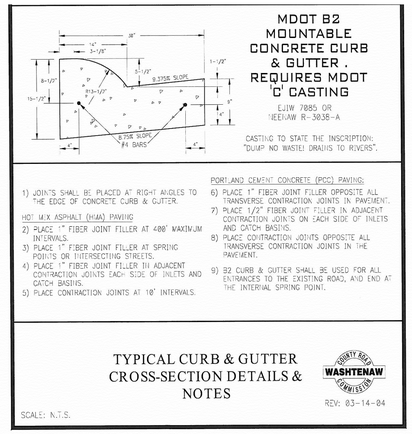


MDOT B2 MOUNTABLE CONCRETE CURB & GUTTER. REQUIRES MDOT 'C' CASTING

EJIW 7085 OR
NEENAH R-3035-A

CASTING TO STATE THE INSCRIPTION:
"DUMP NO WASTE! DRAINS TO RIVERS".

1) JOINTS SHALL BE PLACED AT RIGHT ANGLES TO THE EDGE OF CONCRETE CURB & GUTTER.

HOT MIX ASPHALT (HMA) PAVING

2) PLACE ½" FIBER JOINT FILLER AT 400' MAXIMUM INTERVALS.
3) PLACE ½" FIBER JOINT FILLER AT SPRING POINTS OR INTERSECTING STREETS.
4) PLACE ½" FIBER JOINT FILLER IN ADJACENT CONTRACTION JOINTS EACH SIDE OF INLETS AND CATCH BASINS.
5) PLACE CONTRACTION JOINTS AT 10' INTERVALS.

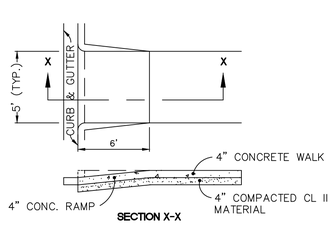
PORTLAND CEMENT CONCRETE (PCC) PAVING:

6) PLACE ½" FIBER JOINT FILLER OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN PAVEMENT.
7) PLACE 1/2" FIBER JOINT FILLER IN ADJACENT CONTRACTION JOINTS ON EACH SIDE OF INLETS AND CATCH BASINS.
8) PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN THE PAVEMENT.
9) B2 CURB & GUTTER SHALL BE USED FOR ALL ENTRANCES TO THE EXISTING ROAD, AND END AT THE INTERVAL SPRING POINT.

TYPICAL CURB & GUTTER CROSS-SECTION DETAILS & NOTES

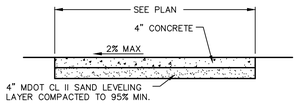
SCALE: N.T.S.

REV: 03-14-04



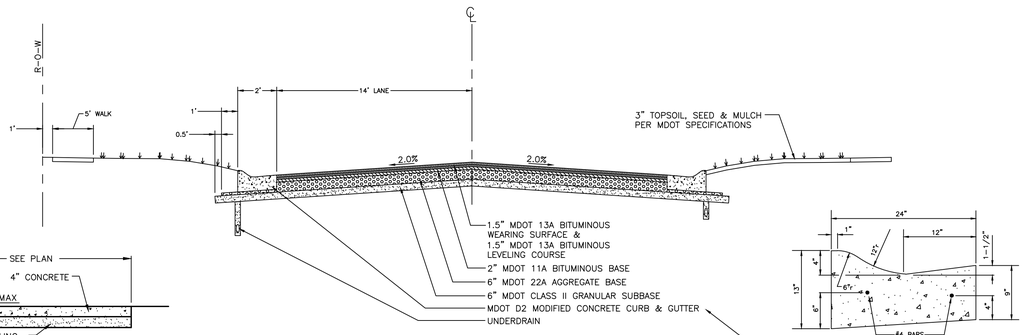
WHEEL CHAIR RAMP AND TYPICAL SIDEWALK DETAIL

NO SCALE



CONCRETE SIDEWALK SECTION

NOT TO SCALE

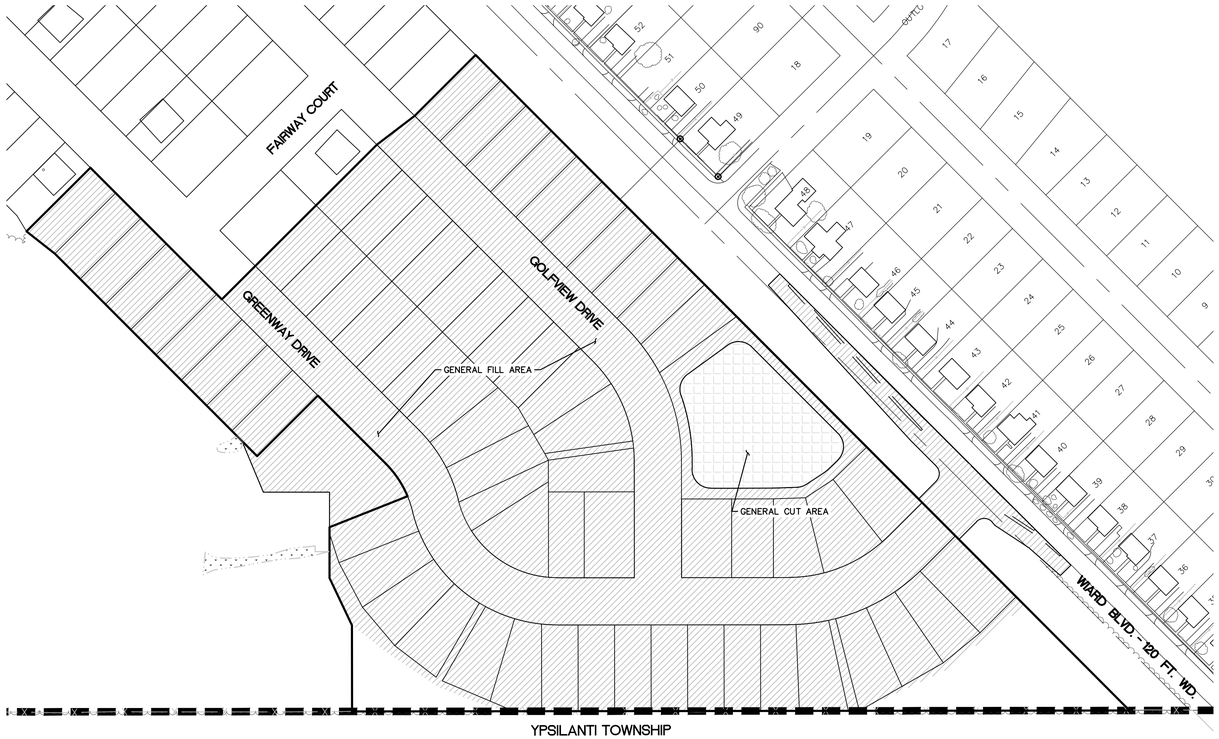


RESIDENTIAL ROADWAYS (PUBLIC, PER ORIG. PLANS)

NOT TO SCALE

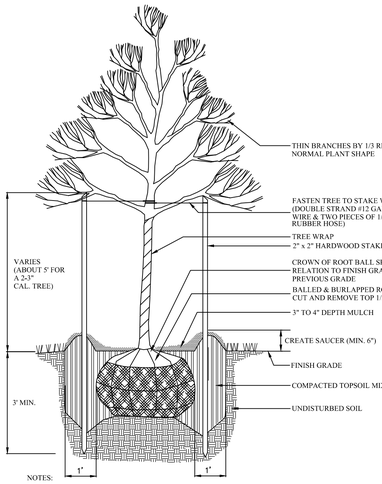
MDOT D-2 MODIFIED CONCRETE CURB & GUTTER

REQUIRES E.J.I.W. 7065 OR NEENAH R-3034-B CASTING
NO SCALE



PRELIMINARY CUT AND FILL AREAS

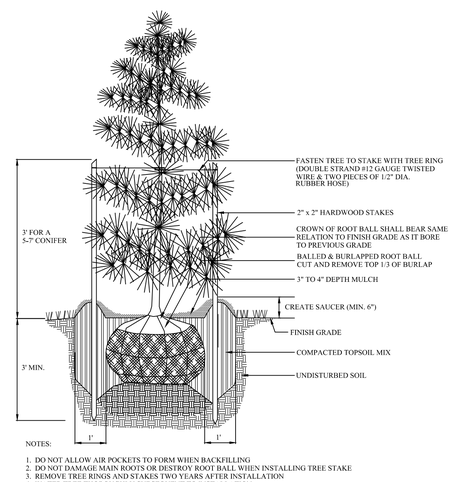
SCALE: 1" = 100 FEET



NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE
3. REMOVE TREE RINGS, TREE WRAP AND STAKES TWO YEARS AFTER INSTALLATION
4. WATER TREE THOROUGHLY SUBSEQUENT TO INSTALLATION

DECIDUOUS TREE PLANTING DETAIL

NO SCALE



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CONIFEROUS TREE PLANTING DETAIL

NO SCALE

ATWELL
866.850.4200 www.atwell-group.com
311 NORTH MAIN
ANN ARBOR, MI 48104
734.994.4000

SECTION 35
TOWN 3 SOUTH, RANGE 10 EAST
SUPERIOR TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
MAYALCO, LLC

FAIRWAY GLENS – PHASE II
PRELIMINARY SITE PLAN

TYPICAL DETAILS

DATE
DECEMBER 20, 2019

12/20/19 TOWNSHIP SUBMITTAL

REVISIONS

SCALE 0 — — — AS NOTED

DR. MB | CH. WS/CK

P.M. M BUSH

JOB 19000721

SHEET NO. 12

CAD FILE: 19000721SP-11-DT.DWG

K:\19000721\DWG\PLAN SETS\SITE-PRELIMINARY\19000721SP-11-DT.DWG 12/18/2019 2:19 PM ALEX ROSS