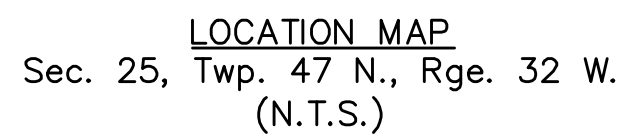
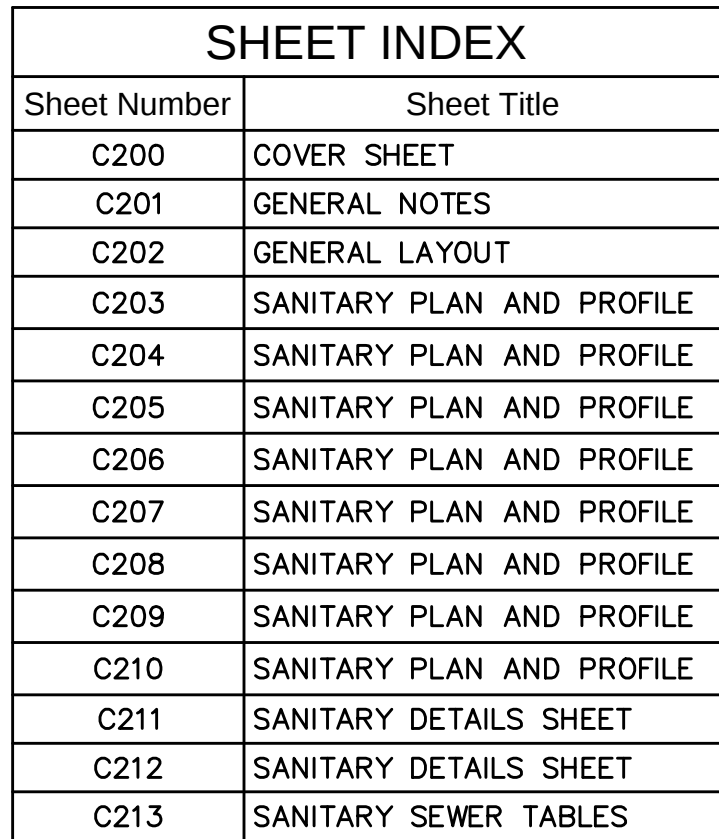


N/W 1/4 SECTION 25, TOWNSHIP 47 N, RANGE 32 W.  
IN LEE'S SUMMIT, JACKSON COUNTY, MO



☐ NOT FOR CONSTRUCTION

☒ REVIEWED FOR CONSTRUCTION



CITY OF LEE'S SUMMIT

DATE \_\_\_\_\_

  
MELISSA G. DEGONIA  
CIVIL ENGINEER  
MO#2011000892

8-28-19  
DATE

A TRACT OF LAND IN THE NORTHWEST QUARTER OF SECTION 25, TOWNSHIP 47 NORTH, RANGE 32 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, AND A PORTION OF TRACT E, OF HAWTHORN RIDGE 1ST PLAT, A SUBDIVISION OF LAND RECORDED AS DOCUMENT 2019E0020897 IN BOOK 182 AT PAGE 83, IN THE OFFICE OF RECORDER OF DEEDS FOR JACKSON COUNTY, MISSOURI ALL BEING BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER OF SECTION 25; THENCE SOUTH 87°46'49" EAST ON THE SOUTH LINE OF SAID NORTHWEST QUARTER, 2,653.29 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER, (CENTER OF SECTION) AND THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE ON SAID SOUTH LINE OF SAID NORTHWEST QUARTER, NORTH 87°46'49" WEST, 577.00 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 02°13'11" EAST, 135.00 FEET; THENCE NORTH 87°46'49" WEST, 50.79 FEET; THENCE NORTH 02°18'36" EAST, 596.57 FEET; THENCE SOUTH 87°41'24" EAST, 37.00 FEET; THENCE NORTH 02°18'36" EAST, 192.00 FEET; THENCE NORTH 87°41'24" WEST, 75.58 FEET; THENCE NORTH 02°18'36" EAST, 39.05 FEET; THENCE NORTH 33°13'50" WEST, 218.11 FEET TO THE SOUTHWESTERLY CORNER OF LOT 21 OF SAID HAWTHORN RIDGE 1ST PLAT; THENCE ON THE SOUTHERLY LINE OF SAID HAWTHORN RIDGE 1ST PLAT THE FOLLOWING 9 CALLS, NORTH 54°57'38" EAST, 130.00 FEET; THENCE SOUTH 35°02'22" EAST, 58.00 FEET; THENCE NORTH 54°57'38" EAST, 175.90 FEET; THENCE SOUTH 65°30'07" EAST, 95.33 FEET; THENCE SOUTH 87°41'24" EAST, 121.73 FEET; THENCE NORTH 02°18'36" EAST, 78.00 FEET; THENCE SOUTH 87°41'24" EAST, 175.00 FEET; THENCE NORTH 02°18'36" EAST, 72.00 FEET; THENCE SOUTH 87°41'24" EAST, 130.00 FEET TO THE SOUTHEASTERLY CORNER OF LOT 28 OF SAID HAWTHORN RIDGE 1ST PLAT AND A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER; THENCE ON SAID EAST LINE, SOUTH 02°18'36" WEST, 1,392.58 FEET TO THE POINT OF BEGINNING. CONTAINING 827.409 SQUARE FEET OR 19.00 ACRES, MORE OR LESS.

RR SPIKE IN SOUTH FACE OF POWER POLE ON NORTH SIDE OF SW. HOOK ROAD, IMMEDIATELY WEST OF DRIVEWAY FOR HOUSE#1622. ELEVATION= 1024.63'

**olson**



MELISSA G. DEGONIA

[illegible]

|                                       |      |
|---------------------------------------|------|
| COVER SHEET I<br>SANITARY SEWER PLANS | 2019 |
| HAWTHORN RIDGE<br>SECOND PLAT         |      |
| LEE'S SUMMIT, MISSOURI                |      |

Drawn by: D.A.H.Q  
 Checked by: M.G.D  
 Designed by: B.M.W  
 A/QC by: N.D.H  
 Project no.: 019-1605  
 Date: 07-12-2019

HEET  
C200

| ESTIMATE OF QUANTITIES |                                  |      |          |          |
|------------------------|----------------------------------|------|----------|----------|
| ITEM NO.               | DESCRIPTION                      | UNIT | QUANTITY | AS-BUILT |
| STREET                 |                                  |      |          |          |
| 1                      | 8" SANITARY PVC (SDR-26)         | L.F. | 3110.30  | ⚠        |
| 2                      | MANHOLES, STD. 4' DIA.           | EA.  | 13       |          |
| 3                      | CONNECTION TO EXISTING STRUCTURE | EA.  | 1        |          |
| 4                      | TRACER WIRE                      | L.F. | 2644.15  | ⚠        |
| 5                      | TRACER WIRE BOX                  | EA.  | 62       |          |
| 6                      | SERVICE WYE                      | EA.  | 62       |          |
| 7                      | 4" LATERAL PIPE                  | L.F. | 2644.15  | ⚠        |

SUMMARY OF QUANTITIES AS INDICATED ABOVE AND ANY QUANTITIES AS SHOWN WITHIN THE PLANS HAVE BEEN PROVIDED FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR USE IN PREPARATION OF CONTRACT DOCUMENTS. QUANTITIES INTENDED FOR, BUT NOT LIMITED TO, THE PREPARATION OF PROPOSALS AND BID DOCUMENTS SHALL BE INDEPENDENTLY EVALUATED BY THE ESTIMATING PARTY BASED UPON THE CONTENTS OF THESE PLANS.

SANITARY SEWER GENERAL NOTES

- PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH CITY OF LEE'S SUMMIT, MISSOURI.
- ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
- ALL STRUCTURE DIMENSIONS ARE TO INSIDE FACE OF STRUCTURE.
- COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE LID DURING INSTALLATION.
- THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF SANITARY SEWER.
- SANITARY SEWER TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
- MANHOLE INVERT CHANNELS SHALL BE SMOOTH, CIRCULAR, AND CONFORMING TO ¾ THE ADJACENT PIPE SECTION (INVERT TO CENTER). CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE AND MAINTAIN SHAPE THROUGHOUT. CHANGES IN GRADE OF ADJACENT PIPES SHALL BE TRANSITIONED SMOOTHLY AND EVENLY THROUGH THE MANHOLE.
- PIPE PENETRATIONS SHALL BE USE GASKETS TO ENSURE WATERTIGHT SEALS.
- TRACING TAPE SHALL BE INSTALLED ALONG ALL NON-METALLIC SURFACES OR AS DIRECTED BY LOCAL CODES AND ORDINANCES.
- SEWER LINE INSPECTIONS AND TESTING MUST BE SCHEDULED A MINIMUM OF TWO FULL BUSINESS DAYS IN ADVANCE. CONTRACTOR SHALL FURNISH ALL TESTING EQUIPMENT. TESTING SHALL INCLUDE
  - MANDREL TEST OF ALL GRAVITY SEWERS. IF THE MANDREL TEST FAILS ON ANY SECTION OF PIPE, THAT SECTION SHALL BE UNCOVERED AND REPLACED.
  - AIR PRESSURE TEST OF ALL GRAVITY SEWERS.
  - VACUUM TEST OF ALL MANHOLES.
- REFER TO SHEET C213 FOR SANITARY DESIGN & SEWER LATERAL INFORMATION.
- ALL SERVICE LINE CONNECTIONS SHALL BE MADE WITH AN 8"x4" PVC WYE, 4" PVC 45° BEND, AND THE APPROPRIATE LENGTH OF 4" PVC LATERAL (UNLESS OTHERWISE SHOWN) AND CAP. SEE DETAIL SHEET C211.
- MSFE- INDICATES LOWEST FLOOR SERVICEABLE BY PROPOSED SANITARY SEWER.
- MAXIMUM DEVIATION FROM LATERAL STATION LOCATIONS AS CALLED OUT SHALL BE 2.0' TO AVOID PIPE JOINT.
- SANITARY LATERALS ARE DESIGNED @ 2.00% SLOPE. IF RISER IS INDICATED, IT IS TO BE AT THE SANITARY MAIN, UNLESS OTHERWISE NOTED.
- REFER TO CURRENT CITY SPECIFICATIONS FOR MINIMUM PIPE SLOPES.
- CONTRACTOR MAY BE REQUIRED TO RECONSTRUCT PIPE AND STRUCTURE IF MINIMUM INVERT DROP OR PIPE SLOPE REQUIREMENTS ARE NOT MET.
- SANITARY STRUCTURES SHALL BE PER CURRENT CITY DETAILS. IF CITY DOES NOT HAVE PUBLISHED DETAILS STRUCTURES SHALL BE PER CURRENT APWA SPECIFICATIONS.
- GRAVITY SANITARY SEWER AND WATER LINES SHALL BE SEPARATED BY A MINIMUM OF 10' HORIZONTALLY WHEN PARALLEL AND 2' VERTICALLY WHEN CROSSING. WATER LINES SHALL CROSS ABOVE SANITARY SEWERS.

GENERAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLANS IN THEIR POSSESSION ARE THE MOST CURRENT VERSION ISSUED, ARE FULLY COORDINATED WITH ALL SUBCONTRACTORS, AND PRESENT ON SITE AT ALL TIMES. CURRENT PLANS PREPARED BY OLSSON MAY BE OBTAINED AT THE DIRECTION OF OLSSON'S CLIENT. DIRECT REQUESTS TO OLSSON MAY REQUIRE ADDITIONAL AUTHORIZATIONS, AGREEMENTS, AND/OR FEES. PLEASE CONTACT THE ENGINEER FOR INFORMATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
- ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
- ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
- THE CONTRACTOR SHALL NOT ENGAGE IN ACTIVITIES THAT MAY ENCROACH ON WATERS OF THE U.S., INCLUDING WETLANDS, UNTIL ANY NECESSARY PERMITS MAY BE OBTAINED. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL CONDITIONS DESCRIBED IN THE PERMIT.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, THE SAFETY OF ALL PERSONS INCLUDING VISITORS AND THE GENERAL PUBLIC, AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY THROUGHOUT THE PROJECT AND NOT BE LIMITED BY WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
- PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND OBTAIN ANY RELEVANT INFORMATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTIES AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES.
- PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO PERFORM A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

REFERENCES

- UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:
  - ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
  - ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.
  - ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
  - ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES.
  - ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

EXISTING CONDITIONS

- THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THEIR OWN INVESTIGATIONS AND MAKING THEIR OWN ASSUMPTIONS REGARDING SITE SURFACE AND SUBSURFACE CONDITIONS. THIS INCLUDES THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. CONTACT THE ENGINEER REGARDING ANY DISCREPANCIES THAT MAY AFFECT THE ABILITY TO CONSTRUCT FROM THESE PLANS AS DESIGNED.
- EXISTING CONDITIONS WERE DETERMINED THROUGH A VARIETY OF METHODS THAT MAY INCLUDE SURVEY, AERIAL IMAGERY, AVAILABLE RECORDS, GIS DATA, ETC. SUBSURFACE CONDITIONS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES AND OTHER SITE IMPROVEMENTS PRESENT ON SITE. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS WHEN CONFLICTS AND DISCREPANCIES ARE FOUND.

CONSTRUCTION

- THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
- THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
- THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING

FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.

- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
- THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

SHOP DRAWINGS

- THE CONTRACTOR SHALL SUBMIT SHOP DRAWING A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES CONFORMANCE WITH THE DESIGN FOR THIS PROJECT AS DESCRIBED IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. THE ENGINEER'S REVIEW SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS NOTIFIED ENGINEER OF EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND OBTAINED ENGINEER'S WRITTEN APPROVAL OF EACH SUCH VARIATION. PRIOR TO SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE REVIEWED AND VERIFIED:
  - ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;
  - ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;
  - ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;
  - CONTRACTOR SHALL ALSO HAVE REVIEWED AND COORDINATED EACH SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES, AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.
  - ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
- SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:
  - ALL SANITARY SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
  - ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN 'APPROVED EQUAL' ALTERNATIVE.

olsson

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STATE OF MISSOURI  
MELISSA G. DEGONIA  
PE# 2011000892  
2-13-19

MELISSA G. DEGONIA  
PE# 2011000892

BY

REVISIONS DESCRIPTION

NO. REV. 1 08-12-2019

QUANTITIES UPDATED

GENERAL NOTES  
SANITARY SEWER PLANS

HAWTHORN RIDGE  
SECOND PLAT

LEE'S SUMMIT, MISSOURI

2019

drawn by: D.A.H.Q.  
checked by: M.G.D.  
designed by: B.M.W.  
QA/QC by: N.D.H.  
project no.: 019-1605  
date: 07-12-2019

SHEET  
C201

REVISIONS









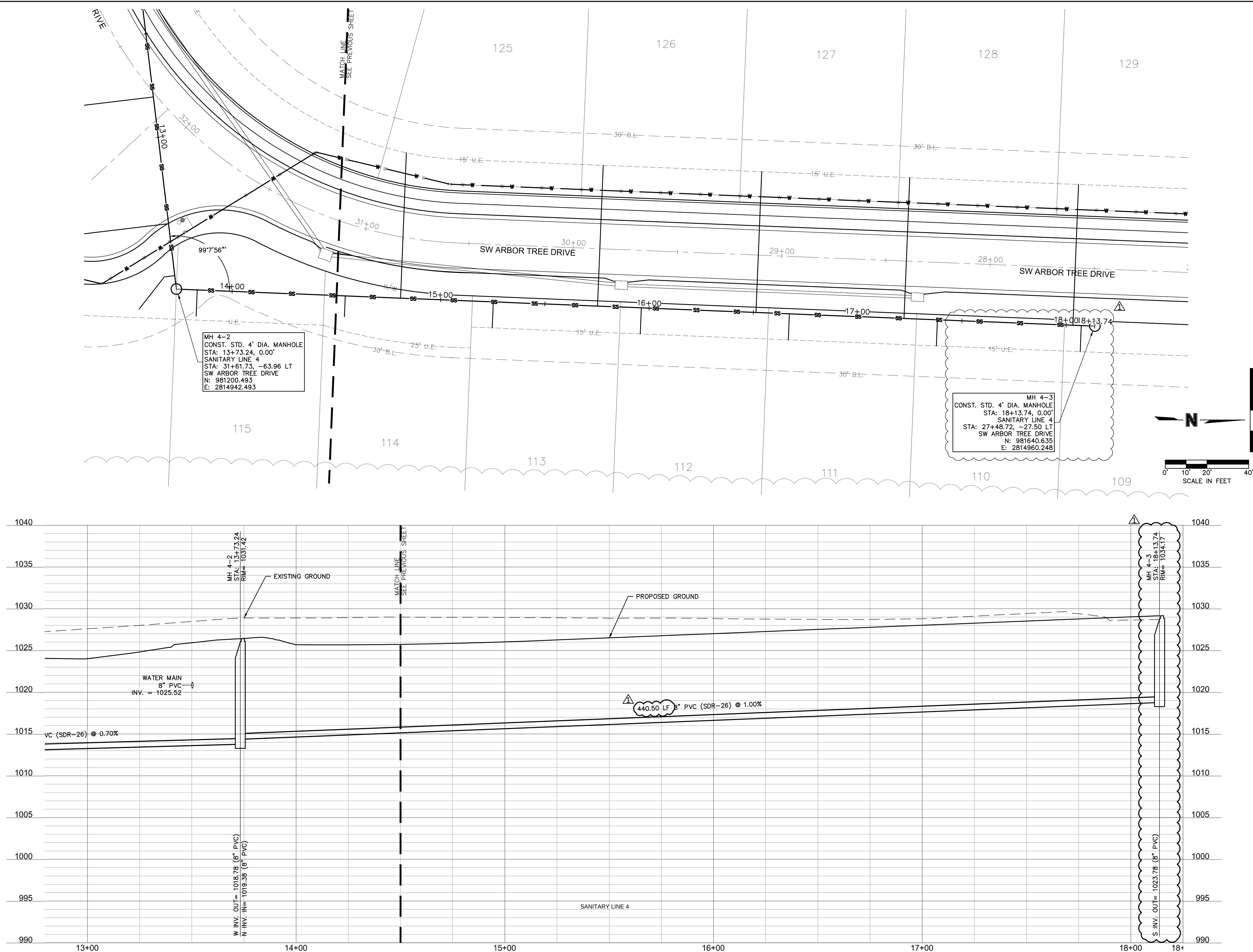








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DATE: Aug 12, 2019 1:49pm XREFS: C\_PBDT\_0191605 C\_PBASE\_0191605 C\_PUTIL\_0191605 C\_PSSWR\_0191605



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STATE OF MISSOURI  
MELISSA G. DEGONIA  
NUMBER  
PE 2011000892  
8-13-19  
PROFESSIONAL ENGINEER

MELISSA G. DEGONIA  
PE# 2011000892

| NO. | REV. | DATE       | REVISIONS DESCRIPTION |
|-----|------|------------|-----------------------|
| 1   |      | 08-12-2019 | MH 4-3 MOVED NORTH    |

SANITARY PLAN AND PROFILE  
SANITARY SEWER PLANS

HAWTHORN RIDGE  
SECOND PLAT

LEE'S SUMMIT, MISSOURI

drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: B.M.W.  
QA/QC by: N.D.H.  
project no.: 019-1605  
date: 07-12-2019

SHEET  
C210

2019

REVISIONS





1. A MINIMUM OF 36 INCHES OF COVER SHALL BE OVER THE TOP OF THE PIPE. THIS MINIMUM OF COVER SHALL BE FROM THE TOP OF PIPE TO THE FINISHED GRADE.
2. BEDDING AGGREGATE SHALL BE PLACED FROM A LEVEL 6 INCHES BELOW THE BOTTOM OF THE PIPE TO A LEVEL 6 INCHES ABOVE THE TOP OF THE PIPE.
3. TRENCH BACKFILL IN PAVED AREAS WITHIN STREET OR ALLEY RIGHT OF WAYS
  - a. NARROW TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES 24 INCHES OR LESS IN WIDTH AND SHALL BE TYPE A FLOWABLE FILL.
  - b. STANDARD TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES BETWEEN 24 TO 48 INCHES WIDE SHALL BE EITHER TYPE A FLOWABLE FILL OR DENSE, WELL GRADED AGGREGATE BASE MATERIAL. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS FOR KDOT AB-3; MODOT TYPES 1 OR 5; OR APWA 2202.2.
  - c. WIDE TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES GREATER THAN 48 INCHES WIDE SHALL BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 202.2.2.
4. SUITABLE BACKFILL MATERIAL OUTSIDE OF PAVED AREAS WITHIN RIGHT OF WAY, AND ALL AREAS OUTSIDE RIGHT OF WAY, MAY BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 2102.2.C. SUITABLE BACKFILL MATERIAL MAY ALSO BE OTHER TRENCH BACKFILL MATERIAL (FLOWABLE FILL OR AGGREGATE BASE) DEPENDING ON SITE CONDITIONS, TRENCH WIDTHS OR AT THE DIRECTION OF THE CITY'S ON SITE INSPECTOR.

| Sanitary Sewer Laterals                                        |                 |                |       |                  |                            |                                    |
|----------------------------------------------------------------|-----------------|----------------|-------|------------------|----------------------------|------------------------------------|
| Lot Number                                                     | Lateral Station | Lateral Length | Riser | Flowline at Main | Flowline at End of Lateral | Minimum Servicable Floor Elevation |
| 101                                                            | 18+99.50        | 12.50          | 0.0   | 1025.45          | 1026.70                    | 1029.50                            |
| 102                                                            | 18+28.30        | 12.50          | 0.0   | 1024.74          | 1025.99                    | 1028.79                            |
| 103                                                            | 17+54.50        | 12.50          | 0.0   | 1024.00          | 1025.25                    | 1028.05                            |
| 104                                                            | 16+80.50        | 12.50          | 0.0   | 1023.26          | 1024.51                    | 1027.31                            |
| 105                                                            | 16+06.50        | 12.50          | 0.0   | 1022.52          | 1023.77                    | 1026.57                            |
| 106                                                            | 15+32.50        | 12.50          | 0.0   | 1021.68          | 1022.93                    | 1025.73                            |
| 107                                                            | 15+16.51        | 12.50          | 0.0   | 1021.57          | 1022.82                    | 1025.62                            |
| 108                                                            | 13+90.74        | 12.50          | 0.0   | 1020.69          | 1021.94                    | 1024.74                            |
| 109                                                            | 18+06.24        | 12.50          | 0.0   | 1023.71          | 1024.96                    | 1027.76                            |
| 110                                                            | 17+38.24        | 12.50          | 0.0   | 1023.03          | 1024.28                    | 1027.08                            |
| 111                                                            | 16+67.24        | 12.50          | 0.0   | 1022.32          | 1023.57                    | 1026.37                            |
| 112                                                            | 15+96.24        | 12.50          | 0.0   | 1021.61          | 1022.86                    | 1025.66                            |
| 113                                                            | 15+25.24        | 12.50          | 0.0   | 1020.90          | 1022.15                    | 1024.95                            |
| 114                                                            | 14+54.24        | 10.00          | 0.0   | 1020.19          | 1021.39                    | 1024.19                            |
| 115                                                            | 13+80.74        | 12.50          | 0.0   | 1019.45          | 1020.70                    | 1023.50                            |
| 116                                                            | 13+65.74        | 24.73          | 0.0   | 1018.73          | 1020.22                    | 1023.02                            |
| 117                                                            | 13+41.69        | 94.13          | 0.0   | 1018.96          | 1021.44                    | 1024.24                            |
| 118                                                            | 12+80.55        | 88.35          | 0.0   | 1018.13          | 1020.90                    | 1023.70                            |
| 119                                                            | 12+18.46        | 67.16          | 0.0   | 1017.70          | 1020.04                    | 1022.84                            |
| 120                                                            | 11+50.60        | 77.52          | 0.0   | 1016.92          | 1019.47                    | 1022.27                            |
| 121                                                            | 11+30.60        | 77.44          | 0.0   | 1016.78          | 1019.33                    | 1022.13                            |
| 122                                                            | 21+05.56        | 75.00          | 0.0   | 1016.34          | 1018.84                    | 1021.64                            |
| 123                                                            | 10+90.03        | 18.00          | 0.0   | 1016.50          | 1017.86                    | 1020.66                            |
| 124                                                            | 12+14.46        | 14.61          | 0.0   | 1017.67          | 1018.96                    | 1021.76                            |
| 125                                                            | 14+80.76        | 69.68          | 0.0   | 1020.45          | 1022.84                    | 1025.64                            |
| 126                                                            | 15+75.24        | 67.50          | 0.0   | 1021.40          | 1023.75                    | 1026.55                            |
| 127                                                            | 16+51.24        | 67.50          | 0.0   | 1022.16          | 1024.51                    | 1027.31                            |
| 128                                                            | 17+22.24        | 67.50          | 0.0   | 1022.87          | 1024.22                    | 1028.02                            |
| 129                                                            | 18+02.24        | 67.50          | 0.0   | 1023.67          | 1026.02                    | 1028.82                            |
| 130                                                            | 13+00.00        | 12.50          | 0.0   | 1020.05          | 1021.30                    | 1024.10                            |
| 131                                                            | 15+12.50        | 67.50          | 0.0   | 1021.54          | 1023.89                    | 1026.69                            |
| 132                                                            | 15+36.50        | 67.50          | 0.0   | 1021.71          | 1024.06                    | 1026.86                            |
| 133                                                            | 16+10.50        | 67.50          | 0.0   | 1022.56          | 1024.91                    | 1027.71                            |
| 134                                                            | 16+84.50        | 67.50          | 0.0   | 1023.30          | 1025.65                    | 1028.45                            |
| 135                                                            | 17+58.50        | 67.50          | 0.0   | 1024.04          | 1026.39                    | 1029.19                            |
| 136                                                            | 18+32.50        | 67.50          | 0.0   | 1024.78          | 1027.13                    | 1029.93                            |
| 137                                                            | 10+65.34        | 81.75          | 0.0   | 1004.60          | 1007.24                    | 1010.04                            |
| 138                                                            | 11+46.97        | 83.81          | 0.0   | 1005.50          | 1008.18                    | 1010.98                            |
| 139                                                            | 12+24.79        | 86.27          | 0.0   | 1006.36          | 1009.08                    | 1011.88                            |
| 140                                                            | 13+02.35        | 78.28          | 0.0   | 1007.21          | 1009.77                    | 1012.57                            |
| 141                                                            | 13+43.66        | 69.47          | 0.0   | 1007.95          | 1010.34                    | 1013.14                            |
| 142                                                            | 14+11.58        | 77.01          | 2.0   | 1008.63          | 1013.13                    | 1015.93                            |
| 143                                                            | 15+64.52        | 77.50          | 0.0   | 1010.47          | 1013.02                    | 1015.82                            |
| 144                                                            | 16+42.02        | 77.50          | 0.0   | 1011.24          | 1013.79                    | 1016.59                            |
| 145                                                            | 17+18.02        | 77.50          | 0.0   | 1012.00          | 1014.55                    | 1017.35                            |
| 146                                                            | 17+95.93        | 77.50          | 2.0   | 1012.78          | 1017.29                    | 1020.09                            |
| 147                                                            | 18+70.93        | 77.50          | 2.0   | 1013.79          | 1018.30                    | 1021.10                            |
| 148                                                            | 20+12.93        | 12.50          | 3.0   | 1014.78          | 1018.97                    | 1021.77                            |
| 149                                                            | 19+39.93        | 12.50          | 3.0   | 1014.27          | 1018.46                    | 1021.26                            |
| 150                                                            | 18+66.93        | 12.50          | 3.0   | 1013.76          | 1017.95                    | 1020.75                            |
| 151                                                            | 17+91.93        | 12.50          | 3.0   | 1012.74          | 1016.93                    | 1019.73                            |
| 152                                                            | 17+22.02        | 12.50          | 3.0   | 1012.04          | 1016.23                    | 1019.03                            |
| 153                                                            | 16+47.52        | 12.50          | 3.0   | 1011.30          | 1015.49                    | 1018.29                            |
| 154                                                            | 15+72.02        | 12.50          | 2.0   | 1010.54          | 1013.75                    | 1016.55                            |
| 155                                                            | 10+82.50        | 12.50          | 0.0   | 1011.62          | 1012.87                    | 1015.67                            |
| 156                                                            | 12+28.79        | 10.00          | 3.0   | 1006.40          | 1010.54                    | 1013.34                            |
| 157                                                            | 11+54.48        | 10.00          | 3.0   | 1005.58          | 1009.72                    | 1012.52                            |
| 158                                                            | 10+81.70        | 10.00          | 2.0   | 1004.78          | 1007.94                    | 1010.74                            |
| 159                                                            | 10+09.74        | 10.56          | 2.0   | 1003.99          | 1007.16                    | 1009.96                            |
| 160                                                            | 11+02.50        | 12.50          | 0.0   | 1011.82          | 1013.07                    | 1015.87                            |
| 185                                                            | 21+76.65        | 70.49          | 0.0   | 1017.76          | 1020.17                    | 1022.97                            |
| 204                                                            | 11+39.50        | 77.50          | 0.0   | 1012.19          | 1014.74                    | 1017.54                            |
| Note: Connections to the main shall be made using wye fittings |                 |                |       |                  |                            |                                    |

| Sanitary Sewer Design Information |                       |                          |                          |                        |                |                        |             |                 |                            |                          |                                    |
|-----------------------------------|-----------------------|--------------------------|--------------------------|------------------------|----------------|------------------------|-------------|-----------------|----------------------------|--------------------------|------------------------------------|
| Upstream Manhole                  | Downstream Pipe Slope | Downstream Pipe Diameter | Proposed Cumulative Area | Future Cumulative Area | Peak Base Flow | Peak Infiltration Flow | Peak Inflow | Total Peak Flow | Downstream Pipe Mannings N | Downstream Pipe Capacity | Downstream Pipe Full Flow Velocity |
|                                   | (%)                   | (in)                     | (Ac.)                    | (Ac.)                  | (gpd)          | (gpd)                  | (cfs)       | (cfs)           |                            | (cfs)                    | (fps)                              |
| MH #56-208                        | 0.67%                 | 8                        | 19.02                    | 15.11                  | 51205          | 17068                  | 0.84        | 0.95            | 0.013                      | 0.99                     | 2.83                               |
| MH 1-2                            | 1.10%                 | 8                        | 19.02                    | 15.11                  | 51205          | 17068                  | 0.84        | 0.95            | 0.013                      | 1.27                     | 3.63                               |
| MH 1-3                            | 1.00%                 | 8                        | 16.27                    | 15.11                  | 47080          | 15693                  | 0.78        | 0.88            | 0.013                      | 1.21                     | 3.46                               |
| MH 1-4                            | 1.00%                 | 8                        | 10.79                    | 7.41                   | 27286          | 9095                   | 0.49        | 0.55            | 0.013                      | 1.21                     | 3.46                               |
| MH 1-5                            | 0.70%                 | 8                        | 8.28                     | 7.41                   | 23523          | 7841                   | 0.43        | 0.48            | 0.013                      | 1.01                     | 2.90                               |
| MH 1-6                            | 2.00%                 | 8                        | 0.41                     | 7.41                   | 11720          | 3907                   | 0.23        | 0.25            | 0.013                      | 1.71                     | 4.90                               |
| MH 2-1                            | 1.00%                 | 8                        | 0.47                     | 7.71                   | 12262          | 4087                   | 0.24        | 0.27            | 0.013                      | 1.21                     | 3.46                               |
| MH 3-1                            | 3.84%                 | 8                        | 4.28                     | 0.00                   | 6425           | 2142                   | 0.13        | 0.15            | 0.013                      | 2.37                     | 6.78                               |
| MH 3-2                            | 1.00%                 | 8                        | 4.28                     | 0.00                   | 6425           | 2142                   | 0.13        | 0.15            | 0.013                      | 1.21                     | 3.46                               |
| MH 3-3                            | 0.70%                 | 8                        | 4.28                     | 0.00                   | 6425           | 2142                   | 0.13        | 0.15            | 0.013                      | 1.01                     | 2.90                               |
| MH 3-4                            | 1.00%                 | 8                        | 2.44                     | 0.00                   | 3667           | 1222                   | 0.08        | 0.09            | 0.013                      | 1.21                     | 3.46                               |
| MH 4-1                            | 0.70%                 | 8                        | 6.54                     | 0.00                   | 9817           | 3272                   | 0.20        | 0.22            | 0.013                      | 1.01                     | 2.90                               |
| MH 4-2                            | 0.70%                 | 8                        | 5.31                     | 0.00                   | 7966           | 2655                   | 0.16        | 0.18            | 0.013                      | 1.01                     | 2.90                               |
| MH 4-3                            | 1.00%                 | 8                        | 3.44                     | 0.00                   | 5155           | 1718                   | 0.11        | 0.12            | 0.013                      | 1.21                     | 3.46                               |