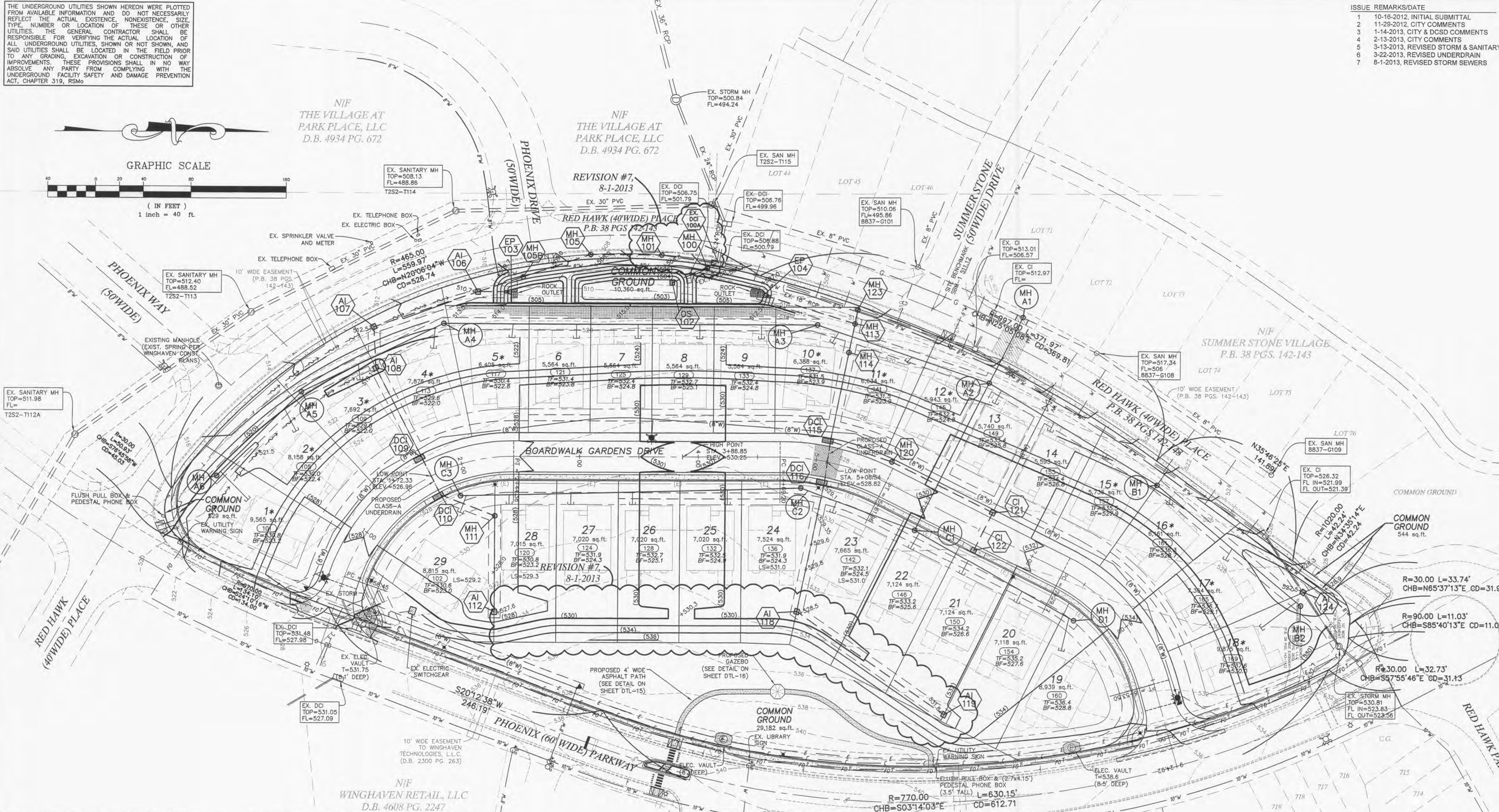
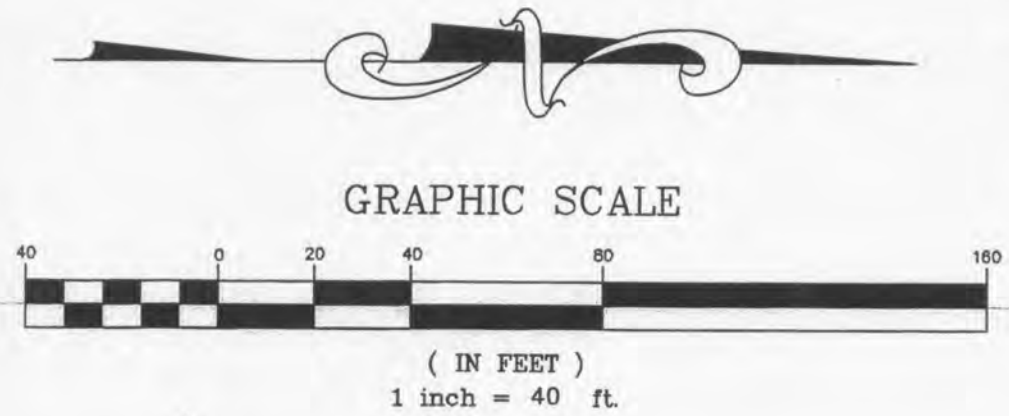


THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo



ISSUE	REMARKS/DATE
1	10-18-2012, INITIAL SUBMITTAL
2	11-29-2012, CITY COMMENTS
3	1-14-2013, CITY & DCSD COMMENTS
4	2-13-2013, CITY COMMENTS
5	3-13-2013, REVISED STORM & SANITARY
6	3-22-2013, REVISED UNDERDRAIN
7	8-1-2013, REVISED STORM SEWERS

PROJECT TITLE
BOARDWALK GARDENS
OFF FALLON, MISSOURI

THE **STERLING** CO.
ENGINEERS & SURVEYORS
5055 New Baumgartner Road
St. Louis, Missouri 63129
Ph 314-487-0440 Fax 314-487-8944
www.sterling-eng-survey.com
Corporate Certificate of Authority #001348

The Professional Engineer's seal and signature shall be on the sheet copies only. If the material and items shown on this sheet are to be used for any other project, the engineer's seal and signature shall not be considered valid for that project, and the engineer's seal and signature shall not be used for any other project without the engineer's written consent.

Date: 8/1/2013
MICHAEL G. BOERDING
License No. E-28643
Civil Engineer

MCBRIDE RED HAWK, LLC
16091 SWINGLEY RIDGE ROAD, SUITE 300
CHESTERFIELD, MISSOURI 63017
PH. 636-637-2000
Contact: Jeremy Roth

GRADING PLAN

EMERGENCY RELIEF SWALE AT LOTS 28/29

Summary:
Design Storm: 15yr.-20min.
Adjacent Low Sill Elev. = 529.2
Emergency Swale Flowline = 528.0
Channel Flow Elev. = 528.2
Freeboard = 1.0 ft.

Hydraulic Data:
Flowrate 1.6600 cfs
Slope 0.0400 ft/ft
Manning's n 0.0300
Height 1.5000 ft
Bottom width 4.0000 ft
Left slope 0.3300 ft/ft (V/H)
Right slope 0.3300 ft/ft (V/H)
Depth 0.1459 ft
Velocity 2.5610 fps
Flow area 0.6482 ft²
Flow perimeter 4.9312 ft
Hydraulic radius 0.1314 ft

EMERGENCY RELIEF SWALE AT LOTS 23/24

Summary:
Design Storm: 15yr.-20min.
Adjacent Low Sill Elev. = 531.0
Emergency Swale Flowline = 529.8
Channel Flow Elev. = 530.0
Freeboard = 1.0 ft.

Hydraulic Data:
Flowrate 3.0300 cfs
Slope 0.0400 ft/ft
Manning's n 0.0300
Height 1.5000 ft
Bottom width 4.0000 ft
Left slope 0.3300 ft/ft (V/H)
Right slope 0.3300 ft/ft (V/H)
Depth 0.2072 ft
Velocity 3.1600 fps
Flow area 0.9588 ft²
Flow perimeter 5.3223 ft
Hydraulic radius 0.1802 ft

Grading of Existing Water Facilities

WHERE GRADING OCCURS OVER OR NEAR THE EXISTING WATER FACILITIES THE CONTRACTOR SHALL VERIFY THE DEPTH OF THE EXISTING WATER. NO CUT WILL BE ALLOWED OVER THE EXISTING MAIN THAT RESULTS IN A REDUCTION OF COVER TO LESS THAN 42".

Gazebo Construction Note:

A SEPARATE PERMIT SHALL BE REQUIRED PRIOR TO CONSTRUCTION OF THE PROPOSED GAZEBO.

P+Z No. 9831.34.09.01
City No.
Date: OCT. 16, 2012
Job No. 12-05-128

Page No.
3.1
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