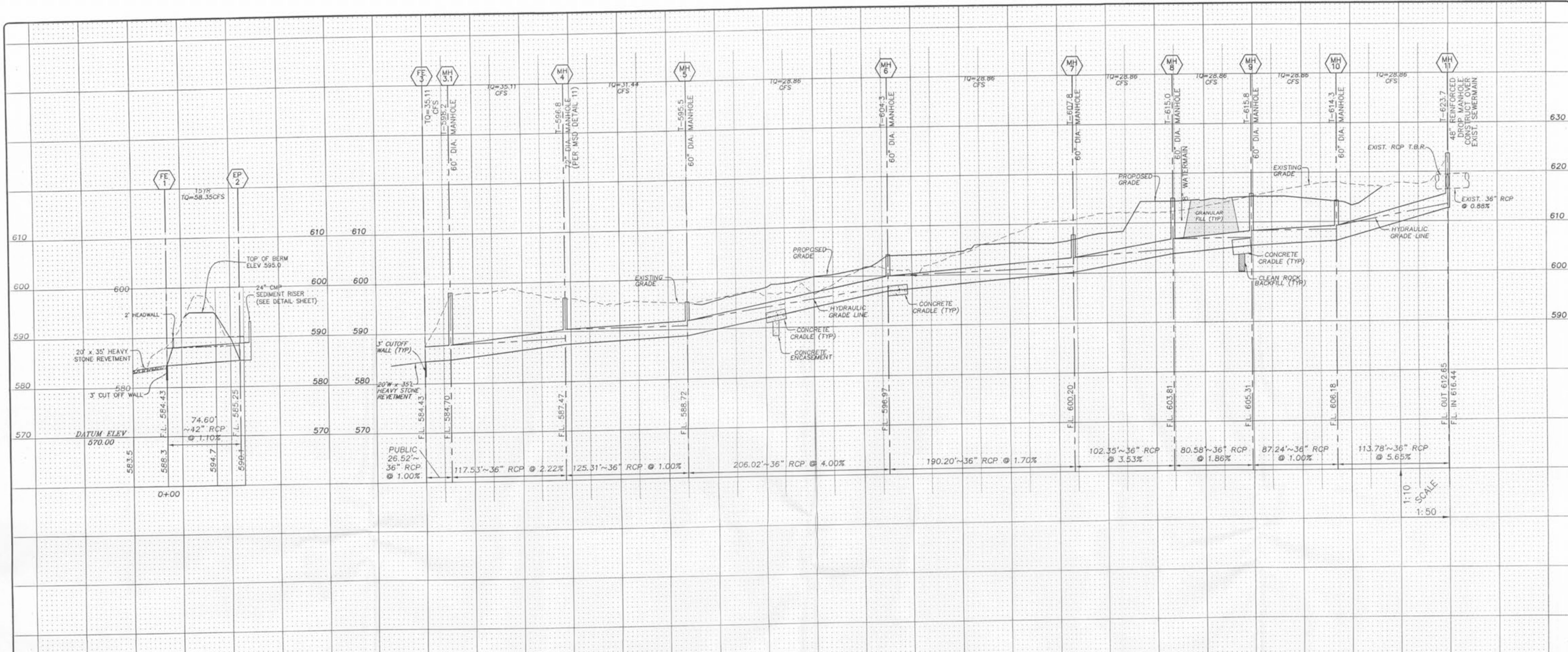


Drawing name: k:\0604087\POINTE LODNA\DWG\Storming\4087\storm.dwg Plotted on: Jul 06, 2007 - 2:45pm Plotted by: glazino



**STORM SEWER HYDRAULICS**

Job Name: POINTE LODNA DM 0604087 Date: 8/08/06

| Upper Str. Type | Struct. Number | Len. in | Q in c.f.s. | Total Q c.f.s. | Pipe Size | Const. in | V in | Vh in | Q x Vh | Hyd. Grade | Flow Line Elevation Upper | Top of Structure Elevation Lower | Free Board | Hydraulic Grade Line Upper | Frict. Loss | Curve Loss | Junc. Loss | Entr. Loss | Angle Loss | Turn (S @) Ft. | Capacity Q c.f.s. | Normal Depth Ft. |        |      |      |
|-----------------|----------------|---------|-------------|----------------|-----------|-----------|------|-------|--------|------------|---------------------------|----------------------------------|------------|----------------------------|-------------|------------|------------|------------|------------|----------------|-------------------|------------------|--------|------|------|
| T               | 2              | 1       | 74.6        | 74.6           | 36        | 1.10%     | 6.06 | 0.57  | 33.33  | 0.34%      | 585.25                    | 584.43                           | 593.42     | 587.93                     | 5.24        | 588.18     | 587.93     | 0.25       | 0.57       |                | 105.48            | 0.53             | 1.86   |      |      |
| T               | 11             | 10      | 114.49      | 28.86          | 36        | 5.65%     | 4.08 | 0.26  | 7.47   | 0.19%      | 612.65                    | 606.18                           | 623.70     | 614.30                     | 10.21       | 613.49     | 609.18     | 0.21       | 0.26       | 70             | 0.16              | 158.56           | 0.18   | 0.84 |      |
| MH              | 10             | 9       | 87.24       | 28.86          | 36        | 1.00%     | 4.08 | 0.26  | 7.47   | 0.19%      | 606.18                    | 605.31                           | 614.30     | 615.80                     | 5.12        | 608.47     | 608.31     | 0.16       |            |                | 30                | 0.09             | 91.00  | 0.31 | 1.14 |
| MH              | 9              | 8       | 80.58       | 28.86          | 36        | 1.86%     | 4.08 | 0.26  | 7.47   | 0.19%      | 605.31                    | 603.81                           | 615.80     | 615.00                     | 7.49        | 606.96     | 606.81     | 0.15       |            |                | 25                | 0.08             | 125.26 | 0.23 | 0.96 |
| MH              | 8              | 7       | 118.35      | 28.86          | 36        | 3.53%     | 4.08 | 0.26  | 7.47   | 0.19%      | 603.81                    | 600.20                           | 615.00     | 607.80                     | 8.19        | 604.77     | 603.80     | 0.19       |            |                | 30                | 0.13             | 86.39  | 0.33 | 1.17 |
| MH              | 7              | 6       | 150.2       | 28.86          | 36        | 1.70%     | 4.08 | 0.26  | 7.47   | 0.19%      | 600.20                    | 596.57                           | 607.80     | 604.30                     | 4.64        | 601.58     | 599.97     | 0.64       |            |                | 25                | 0.35             | 133.47 | 0.29 | 1.08 |
| MH              | 6              | 5       | 256.02      | 28.86          | 36        | 4.00%     | 4.08 | 0.26  | 7.47   | 0.19%      | 596.57                    | 588.72                           | 604.30     | 595.50                     | 4.33        | 597.90     | 591.72     | 0.39       | 0.07       |                | 90                | 0.22             | 66.62  | 0.47 | 1.44 |
| MH              | 5              | 4       | 115.21      | 31.44          | 36        | 1.00%     | 4.45 | 0.31  | 9.66   | 0.22%      | 588.72                    | 587.47                           | 595.50     | 596.80                     | 6.38        | 588.67     | 587.71     | 0.23       | 0.10       |                | 80                | 0.25             | 102.21 | 0.34 | 1.20 |
| MH              | 4              | 3       | 117.53      | 35.11          | 36        | 2.35%     | 4.97 | 0.38  | 13.45  | 0.28%      | 587.47                    | 584.71                           | 596.80     | 598.43                     | 10.49       | 586.81     | 547.43     | 0.07       |            |                | 80                | 0.45             | 102.40 | 0.46 | 1.41 |
| MH              | 3              | 3       | 26.52       | 35.11          | 36        | 1.06%     | 4.97 | 0.38  | 13.45  | 0.28%      | 584.71                    | 584.43                           | 598.43     | 587.43                     | 10.56       | 587.56     | 587.43     | 0.13       |            |                | 80                | 0.45             | 102.40 | 0.46 | 1.41 |

NOTE: A=Area Inlet, M=Manhole, T=Terminal Structure, CI=Curb Inlet, DCI=Double Curb Inlet, SC=Skewed Curb Inlet, TP=Tangent Point, EP=End of Pipe, DS=Outfall Structure  
n=0.013 For RCP, 0.024 For CMP For Drainage Areas, P.I. & Bypass, See Drainage Area Map

**STORM SEWER HYDRAULICS 100 YEAR 20 MINUTE**

Job Name: POINTE LODNA DM 100YR 20MIN Date: 8/08/06

| Upper Str. Type | Struct. Number | Len. in | Q in c.f.s. | Total Q c.f.s. | Pipe Size | Const. in | V in | Vh in | Q x Vh | Hyd. Grade | Flow Line Elevation Upper | Top of Structure Elevation Lower | Free Board | Hydraulic Grade Line Upper | Frict. Loss | Curve Loss | Junc. Loss | Entr. Loss | Angle Loss | Turn (S @) Ft. | Capacity Q c.f.s. | Normal Depth Ft. |        |      |      |
|-----------------|----------------|---------|-------------|----------------|-----------|-----------|------|-------|--------|------------|---------------------------|----------------------------------|------------|----------------------------|-------------|------------|------------|------------|------------|----------------|-------------------|------------------|--------|------|------|
| T               | 2              | 1       | 74.6        | 74.6           | 36        | 1.10%     | 8.16 | 1.03  | 81.08  | 0.61%      | 585.25                    | 584.43                           | 593.42     | 587.93                     | 5.04        | 588.38     | 587.93     | 0.45       | 1.03       |                | 105.48            | 0.74             | 2.24   |      |      |
| T               | 11             | 10      | 114.49      | 38.82          | 36        | 5.65%     | 5.49 | 0.47  | 18.18  | 0.34%      | 612.65                    | 606.18                           | 623.70     | 615.60                     | 10.06       | 613.64     | 609.18     | 0.39       | 0.47       | 70             | 0.28              | 158.56           | 0.24   | 0.99 |      |
| MH              | 10             | 9       | 87.24       | 38.82          | 36        | 1.00%     | 5.49 | 0.47  | 18.18  | 0.34%      | 606.18                    | 605.31                           | 615.60     | 615.40                     | 7.09        | 607.08     | 606.81     | 0.27       |            |                | 30                | 0.16             | 91.00  | 0.43 | 1.35 |
| MH              | 9              | 8       | 80.58       | 38.82          | 36        | 1.86%     | 5.49 | 0.47  | 18.18  | 0.34%      | 605.31                    | 603.81                           | 615.60     | 607.80                     | 7.79        | 604.95     | 603.20     | 0.35       |            |                | 25                | 0.14             | 123.26 | 0.31 | 1.14 |
| MH              | 8              | 7       | 118.35      | 38.82          | 36        | 3.53%     | 5.49 | 0.47  | 18.18  | 0.34%      | 603.81                    | 600.20                           | 615.60     | 607.80                     | 8.44        | 601.58     | 599.97     | 0.64       |            |                | 30                | 0.23             | 88.39  | 0.45 | 1.38 |
| MH              | 7              | 6       | 150.2       | 38.82          | 36        | 1.70%     | 5.49 | 0.47  | 18.18  | 0.34%      | 600.20                    | 596.57                           | 607.80     | 604.30                     | 4.60        | 601.58     | 599.97     | 0.64       |            |                | 25                | 0.35             | 133.47 | 0.29 | 1.08 |
| MH              | 6              | 5       | 256.02      | 38.82          | 36        | 4.00%     | 5.49 | 0.47  | 18.18  | 0.34%      | 596.57                    | 588.72                           | 604.30     | 595.50                     | 4.23        | 598.05     | 591.72     | 0.70       | 0.13       |                | 90                | 0.39             | 66.62  | 0.63 | 1.71 |
| MH              | 5              | 4       | 115.21      | 42.29          | 36        | 1.00%     | 5.98 | 0.56  | 23.97  | 0.40%      | 588.72                    | 587.47                           | 595.50     | 596.80                     | 6.38        | 588.67     | 587.70     | 0.59       | 0.17       |                | 80                | 0.45             | 102.40 | 0.46 | 1.41 |
| MH              | 4              | 3       | 117.53      | 47.22          | 36        | 2.35%     | 6.68 | 0.69  | 32.72  | 0.50%      | 587.47                    | 584.71                           | 598.43     | 598.43                     | 10.56       | 587.56     | 587.43     | 0.13       |            |                | 80                | 0.45             | 102.40 | 0.46 | 1.41 |
| MH              | 3              | 3       | 26.52       | 47.22          | 36        | 1.02%     | 6.68 | 0.69  | 32.72  | 0.50%      | 584.71                    | 584.43                           | 598.43     | 587.43                     | 10.56       | 587.56     | 587.43     | 0.13       |            |                | 80                | 0.45             | 102.40 | 0.46 | 1.41 |

NOTE: A=Area Inlet, M=Manhole, T=Terminal Structure, CI=Curb Inlet, DCI=Double Curb Inlet, SC=Skewed Curb Inlet, TP=Tangent Point, EP=End of Pipe, DS=Outfall Structure  
n=0.013 For RCP, 0.024 For CMP For Drainage Areas, P.I. & Bypass, See Drainage Area Map

ISSUE REMARKS/DATE  
1 FIRST SUBMITTAL - 06-10-06  
2 REVISED PER ST. CHARLES CO. COMMENTS  
3 10-24-06 REVISED PER CITY OF FALLON COMMENTS  
4 06-25-07 SUBMITTED FOR APPROVAL

PREPARED FOR: CROSS DEVELOPMENT OF MISSOURI, INC.  
1609 PROSPECT VILLAGE DR.  
LAKE ST. LOUIS, MO 63367  
314-713-4054

PREPARED BY: THE STERLING CO. ENGINEERS & SURVEYORS  
5055 NEW BALMARTNER ROAD  
ST. LOUIS, MISSOURI 63129  
E-Mail: Sterling@sterling-eng-survey.com

DRAWN: DESIGNED: CHECKED:

PROJECT: THE ENCLAVE AT SOMMERS POINTE  
SHEET TITLE: STORM SEWER PROFILES

|  |
|--|
| NO. 06 04 087                          |
| M.S.D. SHEET 4                         |
| DISTAL FILE LOCATION: SEWER/STORMING/2 |
| ENTER COMMENTS HERE (MAX 250)          |

BASE MAP